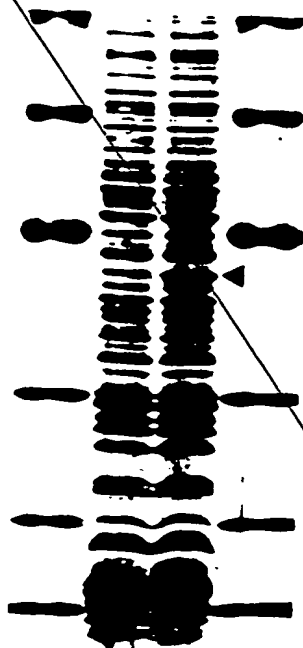


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FIGURE 1

1 2 3 4



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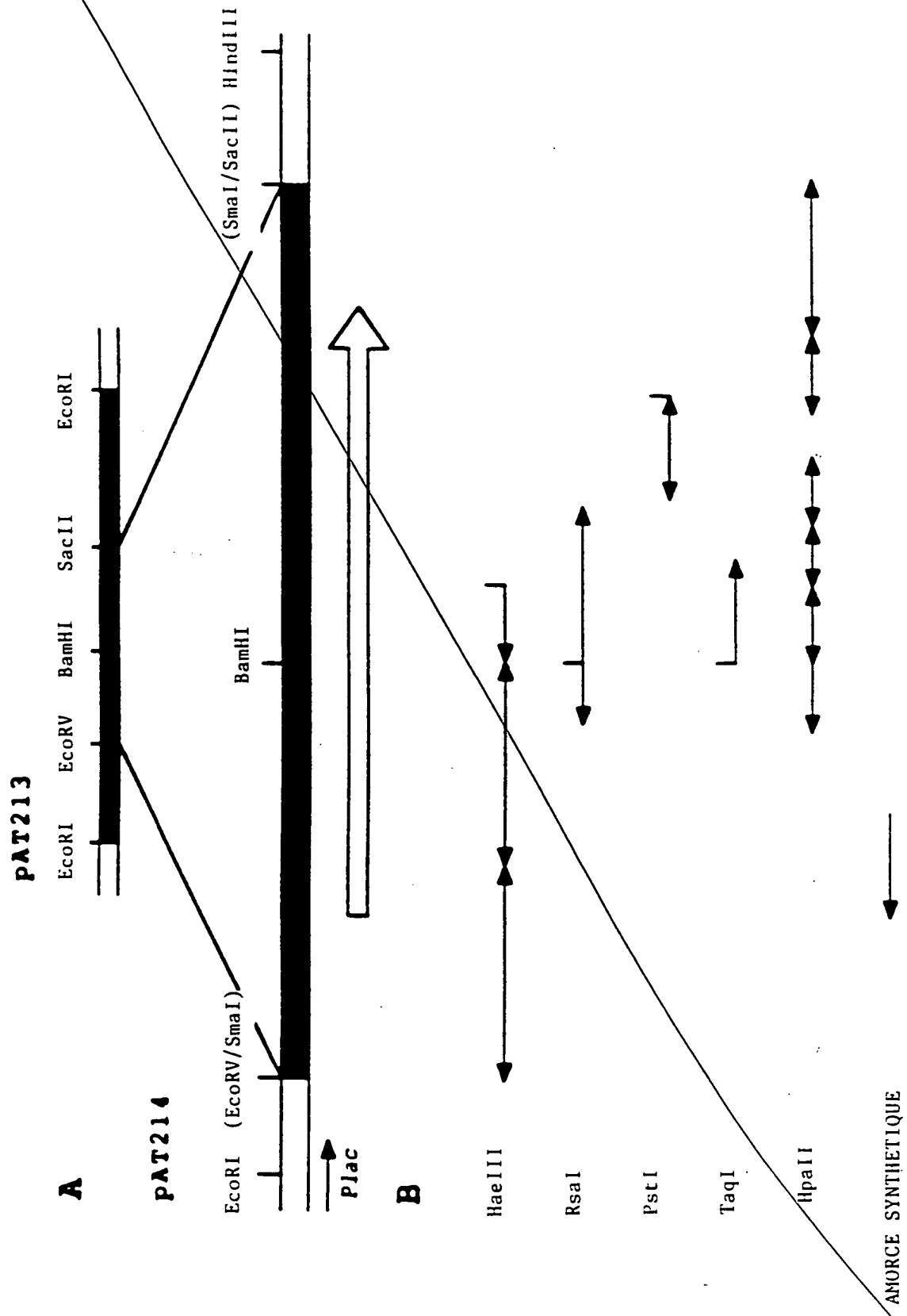
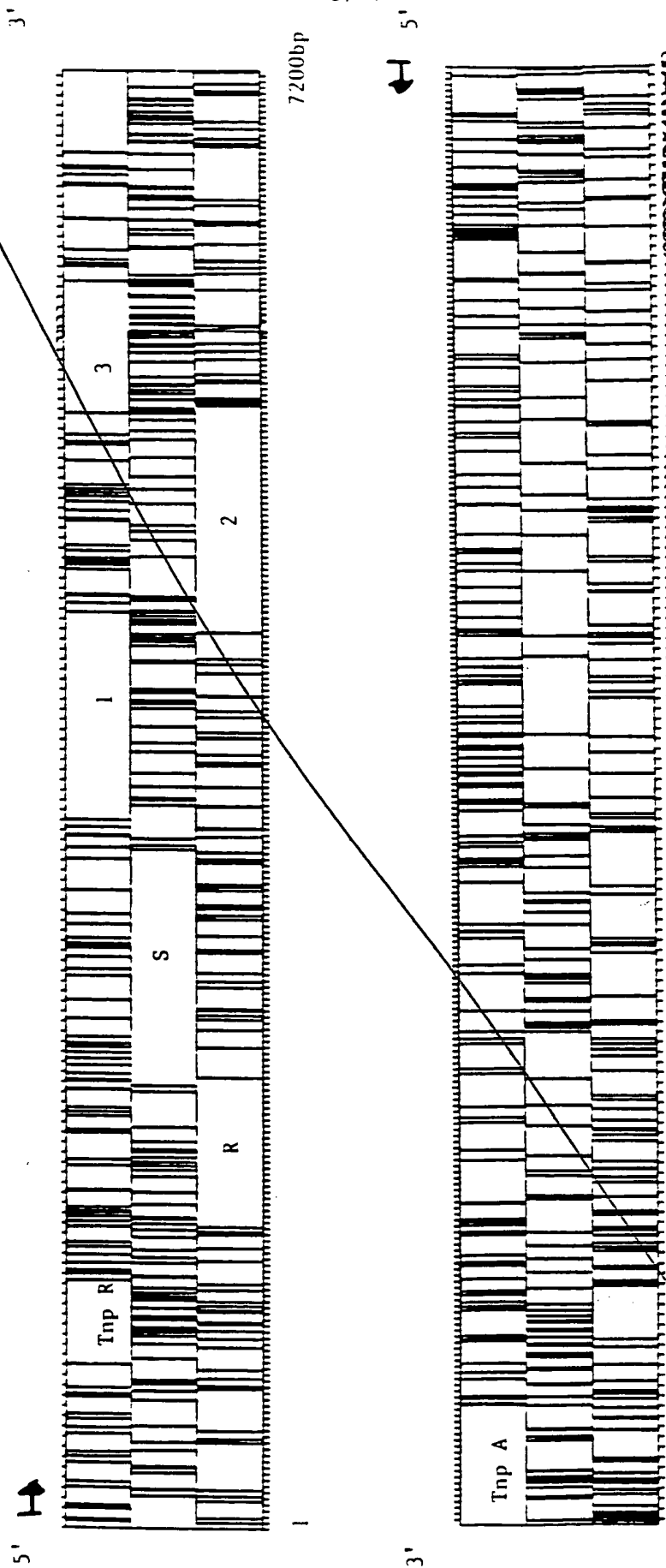


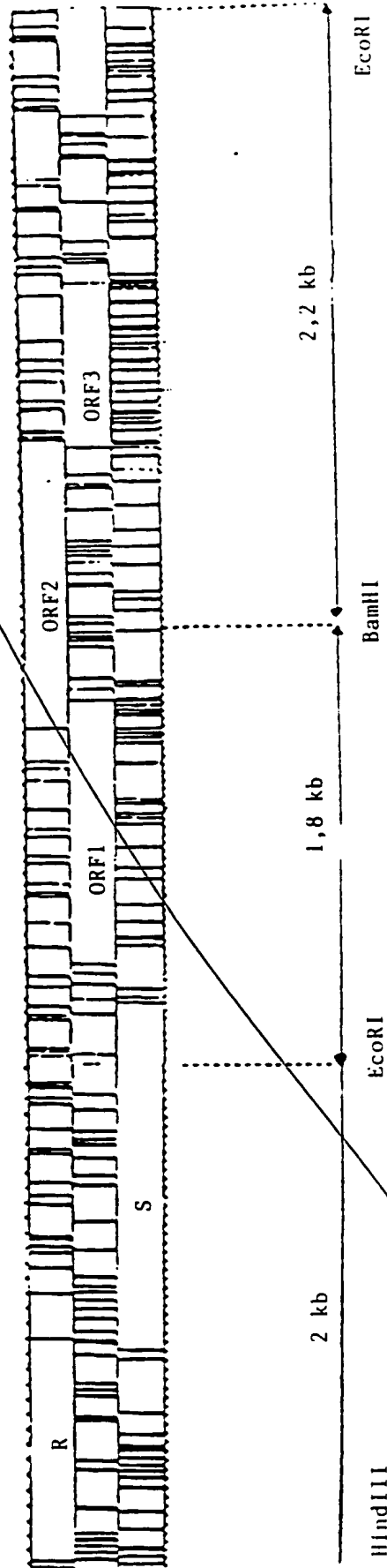
FIGURE 2

FIGURE 3 (T/2)



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FIGURE 3 (2/2)



[illegible]

AAGCTTTCTTTTGGCTCATTTGTTAGAGATTTACTAACCGTATTAAATAGCTTCTTTTC
AGCCATTGCCCTTGCTTCCACACCATTTCTTCAAGTGTAGTGATAGCAGGCAGTATAAT.
TTTGTTTTTCTTAGAAATCTATGCATTCATGCAGTAGATGAATGGCATCACCATTTTTC
CAAGGCTAATTGATGAAGGTAATAATGTTCATTCGATATTCACTCAGGGTAAAGTTAC
AAAGTCGTATTCACCTTCGAATTTCTTCAAAATGATCCCAAAGTGATTTTCCCTTTGAGG
ATAATGATCAAGCGAGGATGGACTAACACCAATCTGTTTCGATATATATGTATGACCCGA
ATCTGGGATGCTTTTGATATGAGTGATGCGCAACCGGATACCGAAGAACAGCTAATTG
AACAGGCAATCCTAAACGGTTTTCTTCCCTCCCTCGCTTATTAACTATTCTAAATCCCG
TTTTTGGAAAGTAGGTCCCGTAGTATTCATCTTCAGGGATTTGCAATAAAGC
CTGTCCTGTTCCGGTGAAGCAATCTCTACCTCTCGCAATTTTCATTTCAGTATCATTC
CAATTTCTGTATTTTCATTTATTAGTTCAATTTATATATATCAATAGAGTGTACTCTATTGAT
ACCAAATGTAGTACTGATAAATCATAGTTAAGAGCGTCTCATAGACTTGTCTCAAAH
ATGAGGTGATATTTTGGGAAATCGGTATATTCGTGTCAGTTTCGACTAACCGAATCC
TTTCAAGACAAATTTTCAGCAETTGACCGAGATCGGAATGGATATATATAAGAGAAAGTTT
CAGGAGCAACAAGGATCGGAGCAACTTCAAAAGTGTTAGACGATTTACAGGAAGATG
ACATCATTTATGTTACAGACTTAACTCGAATCACCTCGTAGTACACAAGATCTATTGAA
TTAATCGATAACATACGAGATAAAGGCAAGTTTAAATCATTCAATAAGATACATGGCTTG
ATTTATCAGAAAGATAATCCATACAGCCAAATCTTAATTACTGTAAITGGCTGTTAAC
AAATTAGAGCGAGATCTTATTCGGATGAGACACGTTGAAGGATTGAATTGGCTAAGAAAG
AAGGAAAGTTTAAAGGTCGATTAAAGANGTATCATAAAAATCACGCAAGGATGAATTATG
CGGXAAAGCTATATAAGAGAGGAAATATGACTGTAAATCAAAATTCGTAAGATTACTAAT
GTATCTAGGGCTTCATTTATACAGGAAATTTATCAGAAGTGAATAATTAGCCATCTGTATT
CCGCTAATGGGCAATATTTTAAAGAGAAAGGAACTATAAAATATTAAACAGCTCTT
AGCGATGCGGAAAGCCCTTTTGATAAAGAAAGGATCATCATCTTAAGAAATCTTAGTCA
TTTATTATGTAAATGCTTATAAATTCGGCCCTATATATCTGATAAATATTAAAGGCAAC

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TTATGTGAAGGGTGATAACTATGAGCGGATAAATACTTATTGTGGATGATGAACATGAA
ATTGCCGATTGGTTGAATTATACCTTAAACGAGATTTATACGGTTTCAATACTAT
ACCGCCAAAGAGCATTTGGAAATGTATAGACAAGCTTGAGATTGACCTTGCCATATGGAC
ATCATGCTTCCGGCACAGCGGCTTACTATCTGTCAAAATAAGGGAGCAGCACACC
TATCCGATTATCATGCTGACCGGGAAGATACAGAGGTAGATAAATTGAGGGTTAAC
ATCGGCGGGGATGATTATATAACGAAGCCCTTCGCCACCTGGAGTTAATTGCTCGGTA
AAGGCCAGTTGCGCGGATACAAAAATTCAGTGGAGTAAGGAGCAGAACGAATAATGTT
ATCGTCCACTCCGGCTTGTCATTAAATGTTAACACCCATGAGTGTATCTGAACGAGAG
CAGTTATCCCTTACTCCACCGAGTTTCAATACCTGCGAATCCCTCTGTGAACACAGGG
AATGTGGTTAGCTCCGAGCTGCTATTTCATGAGATATGGGCGACGAATATTTTCAGCAAG
AGCAACAACACCATCACCGTGCATATCCGGCAATTCGCGAATAATGAACGACACCAT
GATAATCCGAATATATAAAACCGGTATGGGGGTTGGTTATAAATTAATAATAAA
AAACGACTATTCGATTGTATATTCGTTCAATGATCCGAGGGAACCTTGGGATTTGGT
AGCAATTGTATTTCGATTGTATATGACCTTAAATCAGGCGGATGAAATATATCA
CTTAAGTATTTCGAAACAAATATGATATATCTTATTTATGTCGATTTAGTATCT
ATATTCCATACGGAAACAAATATAGATATCTTATTTATGTCGATTTAGTATCT
TATTCTATGTCGGTCTATTCAGAAATTCGCAATATCTTTCGCGAGATAAATACCGG
CATTGATGTACTTATTCAGAACGAGATAACAAATGAGCTTTCGCGAATAAGGATGT
TATGGAAACAAGCTCAACACATTAACACGACCTTCGAAAGCGAGAGCAGGATGCAAA
GCTGGCCGACAAAGAAATGACGTGTTATGTTACTTGGCGACGATATTAAACGCC
CCTTAAATCCATTATCGGTTATTTGAGCTGCTTGACGAGGCTCCAGACATGCCGTA
TCAAAAGGCAAGTATGTCATATCACGTTGGACAAAGCGTATCGACTCGAACAGCTAAT
CGACGAGTTTTCGAGATTACACGGTATAACCTACAAACGATACGCTAACAAAAACGCA
CATAGACCTTACTATATGCTGTCAGATGACCGATGAAATTTATCTCAGCTTTCGGC
ACATGGAAACAGGGGTTATTACGCGCCCGAGGATCTGACCGTGTCCGGCGACCTGA

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TAACTCGGAGAGTCTTTAACACATTTTGAAACGCGCTGCATACAGTGAGGATAA
 CAGCATCATTGACATTACCGGGGCTCTCCGGGATGTGGTGTCAATCGAATTCAGAA
 CACTGGAGCATCCCAAGATAAGCTAGCTGCCATATTIGAAAGTTCATAGGCTGGA
 CAATTCTCGTTCTCCGATACGGGTGGCGGGACTTGGATTGGCGATTGCAGAGAAAT
 TATTGTTTCAGCATGGAGGCGAGATTACGCGGAAGCTATGATACTATACGACGTTTAG
 GGTAGAGCTTCCAGCATGCCAGACTTGGTTGATAAAGGAGGTCCTAAGAGATGTATAT
 AATTTTTCAGGAAATCTCAAGGTATCTTTTCTTAGGAAATTAACAATTTAAT
 ATTAAGAAACGGCTCGTTCTTACAGGTAGACTTAATACCGTAAGAACGAGCGTTTCG
 TTCTTCAGAGAAAGATTTGACAAGATTACCATTGGCACTCCCGTTTATTTGGTGCCCTT
 CACAGAAAGGGTTGGTCTTAATATGATAACATCGGCATTACTGTTTATGGATGTGAGC
 AGGATGAGGCGAGATGCATTCCATGCTCTTCGCTCGCTTGGCGTTATGGCAACGATAA
 TTAACGCCAACGTGTCGGAATCCAACGCCAATCCGCGCTTTCATCAATCAATGTCAGTG
 TGGGACATAAATCAGAGATTTCGCGCTCTATTCTTCTTGGCGTGAAGAGAGCCGGTGTGA
 AATATATTCTACCCGAGAGCATCGGTGCAATCATATAGATACAACTGCTGCTAAGAGAA
 TGGGCATCACTGTCGACAAATGTGGCGTACTCGCCGGATAGCGTTGCCGCTGTGGAAACATG
 TGCTAATTCTTATGGCAGTACCGGAGGTTACGCAAGGTACTCAGCGACATGACAGTTGGTGTGGTGG
 ATTTTCAGGTGGACAGCGACCGTGGCAAGGTTATTGAGCGGCTGCGAGGATTGGATGTAAAGTGT
 GAACGGGCCAGATAGGCAAGCGGTTATTGAGCGGCTGCGAGGATTGGATGTAAAGTGT
 TGGCTTATAGTGGAGCCGAGTATAGAGGTAACTATGTACCGTTTGGATGAGTTGCTGC
 AAAATAGCGATATCGTTACGCTTCATGTGCGGCTCATACGGATACGCACTATATTATCA
 GCCACGAAATAACAGAGATGAGCAAGGAGCATTTCTTATCAATACCTGGCGCGGTC
 CACTTGTAGATACCTATGAGTTGGTTAAGCATTAGAAACGGGAACCTGGCGGCTGCCG
 CATTGGATGTATTGGAAGGAGGAGAGGTTTCTACTCTGATTGCACCCCAAAACCAA
 TTATATAATCAATTTTACTTAACCTTCAAGAGATTGCTAACGTGATAATCACACCGCAT
 GGGCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAACCAATTAACAACTGTT

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TGGATTTTGAAGGAGACAGGAGCATGAATAGAAATAAAGTTGCCAATACTGTTTGGGCGT
TGCTCAGAGGAGCATGACGTATCGGTAAATCTGCAATAGAGATAGCCGCTAACATTAAT
-AAGBAAAATAEGAGCGTTATACATTGGAATTACGAATCTGGTGTATGGAAATGTGC
GAAAACCTTGCGCGGATGGGAAACGACAATTGCTATTGAGCTGTACTCGCCGGAT
AAAAAATGCACGGATTACTTGTAAAGAACCATGAAATAGAAATCAACCATGTGTGAT
GTAGCATTTTCAGCTTTGCAATGGCAAGTCAGGTGAGATGGAATCAATCAAGGTCGT
GAATGTCCGGTATCCCTTTTGTAGGCTGCGATATCAAGGCTCAGCAATTTGTATGGAC
AAATCGTTGACATACATCGTTGCGAAATATGCTGGGATAGCTACTCCCGCTTTTGGGT
ATTATAAGATGATAGGCCGTTGCGAGCTACGTTTACCTATCTGTTTGTAGCCG
GCGCTTCAGGCTCATCCTTCGGTGTGAAGAAAGTCAATAGCGGACGAATTGGACTAC
GCAATTGAATCGCAAGACAAATATGACAGCAAAATCTTAATTGAGCAGGCTGTTTCGGC
TGTGAGGTCGGTTGTGCGGTATTGGGAACAGTGCCGCTTAGTTGTTGCGAGGTGGAC
CAAATCAGGCTGCAGTACGGAACTTTCTGATATCATCAGGAAGTCGAGCCGGAAAGGC
TCTGAACACGCAGTTATAACCGTTCCCGCAGACCTTTCAGCAGAGGAGCGAGGACGGATA
CAGGAACGCGCAAAATAATATAAGCGCTCGGCTGTAGAGGCTAGCCCGTGTGGAT
ATGTTTTCACAGATAGCGCCGCTTGTACTGAACGAAGTCATACTCTGCCCGGTTTC
ACGTATACAGTCGTATATCCCGTATGATGCGCGCTGCHAGGTATTGCACTTCCCGAAGT
ATTGACCGCTTGATCGTATTAGCGTTAAGGGGTGATAAGCATGGAAATAGGATTTACTT
TTTATGATGAATAGTACACGGTGTTCGTTGGGACGCTAATAATGCCACTTGGGATAATT
TCACCGGAACCGGTTGACCGTTATGAAGTAAATCGCATTTGTAGGGACATACGAGTTGG
CTGAATCGCTTTGAAGGCAAGAGACTGCTGCTACCCAGGGTACGGATTGCTTCTAT
GGACGGTTACCGTCCTAAGCGTGCTGTAACCTGTTTATGCAATGGGCTGCACAGCCGG
AAATAACCTGACAAAGGAAGTTATTATCCCAATATTGACCGAAGTGAATTTCA
AAGGATACGTGGCTTCAAAATCAAGCCATAGCCGCGCAGTGCCATTGATCTTACGCTT
ATCGATTAGACACGGGTGAGCTTGTACCAATGGGGAGCCGATTGATTTTATGGATGAC

Fig. 4 (4/5)

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GCTCTCATGCGGCAAAATGGAAATATCATGCAATGAAGCGCAAAATCGCAGACGTTTGC
GCTCCATCATGGAAACAGTGGGTTTGAGCATATAGCCTCGAATGGTGGGACTATGTAT
TAAGAGACGAACCATACCCCAATAGCTATTTTGATTTCCCGTTAAATAAATTTTAAACC
GTTGCACGGACAACATATAGCTAGCTACTTTTCGGCAGGAACCGGACGATGTAACTG
GTTCTTAGGGAATTTATATATAGTAGATAGCTTGAAGATGTAAAGCAGAGCGATATTGC
GGTCATTATCTGCGTGCGCTGCGCAAGATAGCCCTGATATAAGACTGATCGCATAGAGG
GGTGGTATTTACACCGGCCCATTTGTCAACAGGCGTTCAGCCTCGTTAAATTCAGCATGG
GTATCACCTTATGAAAATTCATCTACATTTGGTGATATAAGTAAATCCAGTAGGCGAAATA
ATTGACTGTAAATTTACGGGGCAAAACGGCACATCTCAACAGAGATTGTGCCGTTTAAAGG
GGAAGATTCTAGAAATATTTTCATACTTCCAACTATATAGTTAAGGAGGAGACTGAAATG
AAGAAGTTGTTTTTTTATTGTTATTCTTAAATATACTTAGGTTATGACTACGTT
AATGAAGCACGTGTTTCTCAGGAATAAGTTCGAATTTCAAAATTTATGATCAAAATCCCAA
GAACATTTAGAAATAAGTGGGACTTCTGAATAATACCAAGAGAAACATTTACAGAGAA
CAGGTTTATCAAGGAATCTGCTATTAAATCAATAGTAAATATCTGTTCCCAAGAGAGTG
TGAAGTCAGATATCGTGAATTTATCTAAACATGACGAATTAATAATGGATACGGGTTGC
TTGATAGTAATAATTTATATGTCAAAAGAAATAGCACAAATTTTCAGAGATGCTCAATG
ATGCTGTAAGGGTGGCGTTAGTCATTTTATTTATTTAGTGGCTATCGAGACTTTGATG
AGCAAAGTGCTTTTACCAAGAAATGGGGCTGAGTATGCCCTTACCAAGGTTATAGTG
AGCATAAATTCAGGTTTATCACTAGATGTAGGATCAAGCTTGACGAATGGAAACGAGGCC
ICTGAAGGAAGTGGATAGAGAAATGCTTGGAAATACGGGTTTCATTTTACGTTATCCAG
AGGACAAACAGAGTTAACAGGAATTC

Fig. 4 (5/5)

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LysLeuPhePheLeuLeuIleCys***ArgPheThrAsnArgIleLys***LeuLeuPhe
 SerPheSerPheCysSerPheValArgAspLeuLeuThrValLeuAsnSerPhePheSer
 AlaPheLeuPheAlaHisLeuLeuGluIleTyr***ProTyr***IleAlaSerPheGln
 AAGCTTTTCTTTTGTCTCATTTGTTAGAGATTTACTAACCGTATTAAATAGCTTCTTTTC

 SerHisCysProCysPheProHisHisSerPheLysCysSerAspSerArgGlnTyrAsn
 AlaIleAlaLeuAlaSerHisThrIleLeuSerSerValValIleAlaGlySerIleIle
 ProLeuProLeuLeuProThrProPhePheGlnVal*****GlnAlaVal***Phe
 AGCCATTGCCCTTGCTTCCCACACCATTCTTTCAAGTGTAGTGATAGCAGGCAGTATAAT
 100
 PheValPheSer***LysIleTyrAlaPheMetGln***MetAsnGlyIleThrIlePhe
 LeuPhePheLeuArgLysSerMetHisSerCysSerArg***MetAlaSerProPheSer
 CysPhePheLeuGluAsnLeuCysIleHisAlaValAspGluTrpHisHisHisPhePro
 TTGTGTTTTTCTTAGAAAATCTATGCATTCATGCAGTAGATGAATGGCATCACCATTTTC

 GlnSer***LeuMetLysValLeuLysCysHisSerIlePheThrGlnGlyLysSerTyr
 LysAlaAsn*****ArgTyrLeuAsnValIleArgTyrSerLeuArgValLysValThr
 LysLeuIleAspGluGlyThr***MetSerPheAspIleHisSerGly***LysLeuGln
 CAAAGCTAATTGATGAAGGTACTTAAATGTCATTCGATATTCACCTCAGGGTAAAGTTAC
 200
 LysValValPheThrSerAsnPhePheGlnMetIleProLysCysIlePheProLeuArg
 LysSerTyrSerLeuArgIleSerPheLys***SerGlnSerValPheSerLeu***Gly
 SerArgIleHisPheGluPheLeuSerAsnAspProLysValTyrPheProPheGluAsp
 AAAGTCGTATTCACCTTCGAATTTCTTTCAAATGATCCCAAAGTGTATTTTCCCTTTGAGG
 300

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IleMetIleLysArgGlyTrpThrAsnThrAsnLeuPheArgTyrIleLeuTyrAspArg
 *****SerSerGluAspGlyLeuThrProIleCysPheAspIleTyrCysMetThrGlu
 AsnAspGlnAlaArgMetAsp***HisGlnSerValSerIleTyrIleVal***ProAsn
 ATAATGATCAAGCGAGGATGGACTAACACCAATCTGTTTCGATATATATTGTATGACCGA

 IleTrpAspAlaPheAspMetSerValTrpProThrGlyIleProLysAsnSer***Leu
 SerGlyMetLeuLeuIle***ValTyrGlyGlnProGlyTyrArgArgThrAlaAsn***
 LeuGlyCysPhe***TyrGluCysMetAlaAsnArgAspThrGluGluGlnLeuIleGlu
 ATCTGGGATGCTTTTGTATATGAGTGTATGGCCAACCGGGATACCGAAGACAGCTAATTG
 400
 AsnSerLysSer***ThrValPhePheProProSerLeuIleAsnTyrPhe***IlePro
 ThrAlaAsnProLysArgPheSerSerLeuLeuArgLeuLeuThrIleSerLysSerArg
 GlnGlnIleLeuAsnGlyPheLeuProSerPheAlaTyr***LeuPheLeuAsnProVal
 AACAGCAAATCCTAAACGGTTTTCTTCCCTCCTTCGCTTATTACTATTTCTAAATCCCG

 PheGlyLysSerGluValGlyProGlnTyrProPheIlePheArgAspLeuHisLysSer
 LeuGluLysValLys***ValProSerIleHisSerSerSerGlyIleCysIleLysAla
 TrpLysLys***SerArgSerProValSerIleHisLeuGlnGlyPheAla***LysPro
 TTTGGAAAAAGTGAAGTAGGTCCCCAGTATCCATTTCATCTTCAGGGATTTCATATAAAGC
 500
 LeuSerLeuPheArgCysLysGlnPheSerThrSerArgAsnPheHisSerValSerPhe
 CysLeuCysSerGlyValSerAsnSerLeuProLeuAlaIlePheIleGlnTyrHisSer
 ValSerValProVal***AlaIleLeuTyrLeuSerGlnPheSerPheSerIleIlePro
 CTGTCTCTGTTCCGGTGTAAGCAATTCTCTACCTCTCGCAATTTTCATTTCAGTATCATTC
 600

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HisPheCysIlePheAsnLeuLeuValGlnLeuTyrIleAsnArgValTyrSerIleAsp
 IleSerValPheSerIleTyr***PheAsnTyrIleSerIleGluCysThrLeuLeuIle
 PheLeuTyrPheGlnPheIleSerSerIleIleTyrGln***SerValLeuTyr***Tyr
 CATTCTGTATTTTCAATTTATTAGTTCAATTATATATCAATAGAGTGTACTCTATTGAT

 ThrAsnValValAsp*****AsnHisSer***GluArgLeuIleArgLeuValSerLys
 GlnMet*****ThrAspLysIleIleValLysSerValSer***AspLeuSerGlnLys
 LysCysSerArgLeuIleLysSer***LeuArgAlaSerHisLysThrCysLeuLysAsn
 ACAAATGTAGTAGACTGATAAAATCATAGTTAAGAGCGTCTCATAAGACTTGTCTCAAAA
 700
 MetArg***TyrPheAlaGluAsnArgLeuTyrSerCysGlnPheAsp***ProGluSer
 ***GlyAspIleLeuArgLysIleGlyTyrIleArgValSerSerThrAsnGlnAsnPro
 GluValIlePheCysGlyLysSerValIlePheValSerValArgLeuThrArgIleLeu
 ATGAGGTGATATTTTGCAGAAAATCGGTTATATTCGTGTCAGTTCGACTAACCAGAATCC

 PheLysThrIleSerAlaValGluArgAspArgAsnGlyTyrTyrIleLysArgLysPhe
 SerArgGlnPheGlnGlnLeuAsnGluIleGlyMetAspIleIle***ArgGluSerPhe
 GlnAspAsnPheSerSer***ThrArgSerGluTrpIleLeuTyrLysGluLysValSer
 TTCAAGACAATTTTCAGCAGTTGAACGAGATCGGAATGGATATTATATAAAGAGAAAGTTT
 800
 GlnGluGlnGlnArgIleAlaSerAsnPheLysLysCys***ThrIleTyrArgLysMet
 ArgSerAsnLysGlySerArgAlaThrSerLysSerValArgArgPheThrGlyArg***
 GlyAlaThrLysAspArgGluGlnLeuGlnLysValLeuAspAspLeuGlnGluAspAsp
 CAGGAGCAACAAAGGATCGCGAGCAACTTCAAAAAGTGTTAGACGATTTACAGGAAGATG
 900

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ThrSerPheMetLeuGlnThr***LeuGluSerLeuValValHisLysIleTyrLeuAsn
 HisHisLeuCysTyrArgLeuAsnSerAsnHisSer***TyrThrArgSerIle***Ile
 IleIleTyrValThrAspLeuThrArgIleThrArgSerThrGlnAspLeuPheGluLeu
 ACATCATTATGTTACAGACTTAACTCGAATCACTCGTAGTACACAAGATCTATTTGAAT

SerIleThrTyrGluIleLysArgGlnValAsnHis***LysIleHisGlyLeu
 AsnArg***HisThrArg***LysGlyLysPheLysIleThrLysArgTyrMetAla***
 IleAspAsnIleArgAspLysLysAlaSerLeuLysSerLeuLysAspThrTrpLeuAsp
 TAATCGATAACATACGAGATAAAAAGGCAAGTTTAAAATCACTAAAAGATACATGGCTTG

1000

IleTyrGlnLysIleIleHisThrAlaAsnSer***LeuLeu***TrpLeuValLeuThr
 PheIleArgArg***SerIleGlnProIleLeuAsnTyrCysAsnGlyTrpCys***Pro
 LeuSerGluAspAsnProTyrSerGlnPheLeuIleThrValMetAlaGlyValAsnGln
 ATTTATCAGAAGATAATCCATACAGCGAATTCTTAATTACTGTAATGGCTGGTGTTAACC

Asn***SerGluIleLeuPheGly***AspAsnValLysGlyLeuAsnTrpLeuArgLys
 IleArgAlaArgSerTyrSerAspGluThrThr***ArgAsp***IleGly***GluArg
 LeuGluArgAspLeuIleArgMetArgGlnArgGluGlyIleGluLeuAlaLysLysGlu
 AATTAGAGCGAGATCTTATTCGGATGAGACAACGTGAAGGGATTGAATTGGCTAAGAAAG

1100

LysGluSerLeuLysValAsp***ArgSerIleIleLysIleThrGlnGlu***IleMet
 ArgLysVal***ArgSerIleLysGluValSer***LysSerArgArgAsnGluLeuCys
 GlyLysPheLysGlyArgLeuLysLysTyrHisLysAsnHisAlaGlyMetAsnTyrAla
 AAGGAAAGTTTAAAGGTCGATTAAAGAAGTATCATATAAAATCACGCAGGAATGAATTATG

1200

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ArgArgLysLeuTyrLysGluGlyAsnMetThrValAsnGlnIleCysGluIleThrAsn
GlyGluSerTyrIleLysLysGluIle***Leu***IleLysPheValLysLeuLeuMet
AlaLysAlaIle***ArgArgLysTyrAspCysLysSerAsnLeu***AsnTyr***Cys
CGGXXAAAGCTATATAAAGAAGGAAATATGACTGTAAATCAATTGTGAAATTACTAAT

ValSerArgAlaSerLeuTyrArgLysLeuSerGluValAsnAsn***ProPheCysIle
TyrLeuGlyLeuHisTyrThrGlyAsnTyrGlnLys***IleIleSerHisSerValPhe
Ile***GlyPheIleIleGlnGluIleIleArgSerGlu***LeuAlaIleLeuTyrSer
GTATCTAGGGCTTCATTATACAGGAAATTATCAGAAGTGAATAATTAGCCATTCTGTATT

1300

ProLeuMetGlyAsnIlePheLysGluGluLysGluThrIleLysTyr***GlnProPro
Arg***TrpAlaIlePheLeuLysLysLysArgLysLeu***AsnIleAsnSerLeuLeu
AlaAsnGlyGlnTyrPhe***ArgArgLysGlyAsnTyrLysIleLeuThrAlaSer***
CCGCTAATGGGCAATATTTTAAAGAAGAAAAGGAACTATATATTAACAGCCTCCT

SerAspAlaGluLysProPheAspLysLysArgIleIleIleLeuArgAsnSer***Ser
AlaMetProLysSerProLeuIleLysLysGluSerSerSer***GluIleLeuSerHis
ArgCysArgLysAlaLeu*****LysLysAsnHisHisLeuLysLysPheLeuValIle
AGCGATGCCGAAAAGCCCTTTGATAAAAAAGAATCATCATCTTAAGAAATTCTTAGTCA

1400

PheIleMet***MetLeuIleAsnSerAlaLeu***SerAspLysLeuLeuArgAlaAsn
LeuLeuCysLysCysLeu***IleArgProTyrAsnLeuIleAsnTyr***GlyGlnThr
TyrTyrValAsnAlaTyrLysPheGlyProIleIle*****IleIleLysGlyLysLeu
TTTATTATGTAAATGCTTATAAATTCGGCCCTATAATCTGATAAATTATTAAGGGCAAAC

1500

LeuCysGluArgValIleThrMetSerAspLysIleLeuIleValAspAspGluHisGlu
TyrValLysGly*****Leu***AlaIleLysTyrLeuLeuTrpMetMetAsnMetLys
Met***LysGlyAspAsnTyrGluArg***AsnThrTyrCysGly*****Thr***Asn
TTATGTGAAAGGGTGATAACTATGAGCGATAAAAATACTTATTGTGGATGATGAACATGAA

IleAlaAspLeuValGluLeuTyrLeuLysAsnGluAsnTyrThrValPheLysTyrTyr
LeuProIleTrpLeuAsnTyrThr***LysThrArgIleIleArgPheSerAsnThrIle
CysArgPheGly***IleIleLeuLysLysArgGluLeuTyrGlyPheGlnIleLeuTyr
ATTGCCGATTGTGGTTGAATTATACTTAAAAACGAGAATTATACGGTTTTCAAATACTAT

ThrAlaLysGluAlaLeuGluCysIleAspLysSerGluIleAspLeuAlaIleLeuAsp
ProProLysLysHisTrpAsnVal***ThrSerLeuArgLeuThrLeuProTyrTrpThr
ArgGlnArgSerIleGlyMetTyrArgGlnVal***Asp***ProCysHisIleGlyHis
ACCGCCAAAGAAGCATTGGGAATGTATAGACAAAGTCTGAGATTGACCTTGCCATATTGGAC

~~IleMetLeuProGlyThrSerGlyLeuThrIleCysGlnLysIleArgAspLysHisThr
SerCysPheProAlaGlnAlaAlaLeuLeuSerValLysLys***GlyThrSerThrPro
HisAlaSerArgHisLysArgProTyrTyrLeuSerLysAsnLysGlyGlnAlaHisLeu
ATCATGCTTCCCGGCACAAGCGGCCTTACTATCTGTCAAAAAATAAGGGACAAGCACACC~~

TyrProIleIleMetLeuThrGlyLysAspThrGluValAspLysIleThrGlyLeuThr
IleArgLeuSerCys***ProGlyLysIleGlnArg***IleLysLeuGlnGly***Gln
SerAspTyrHisAlaAspArgGluArgTyrArgGlyArg***AsnTyrArgValAsnAsn
TATCCGATTATCATGCTGACCGGGAAAGATACAGAGGTAGATAAAATTACAGGGTTAACA

Fig. 5 (6/25)

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IleGlyAlaAspAspTyrIleThrLysProPheArgProLeuGluLeuIleAlaArgVal
SerAlaArgMetIleIle***ArgSerProPheAlaHisTrpSer***LeuLeuGly***
ArgArgGly***LeuTyrAsnGluAlaLeuSerProThrGlyValAsnCysSerGlyLys
ATCGGCGCGGATGATTATATAACGAAGCCCTTTCGCCCCACTGAGTTAATTGCTCGGGTA

LysAlaGlnLeuArgArgTyrLysLysPheSerGlyValLysGluGlnAsnGluAsnVal
ArgProSerCysAlaAspThrLysAsnSerValGlu***ArgSerArgThrLysMetLeu
GlyProValAlaProIleGlnLysIleGlnTrpSerLysGlyAlaGluArgLysCysTyr
AAGGCCCGAGTTGCGCCGATACAAAAAATTCAGTGGAGTAAAGGAGCAGAACGAAAATGTT

1900

IleValHisSerGlyLeuValIleAsnValAsnThrHisGluCysTyrLeuAsnGluLys
SerSerThrProAlaLeuSerLeuMetLeuThrProMetSerValIle***ThrArgSer
ArgProLeuArgProCysHis***Cys***HisPro***ValLeuSerGluArgGluAla
ATCGTCCACTCCGGCCTTGTCATTAATGTTAACACCCATGAGTGTATCTGAACGAGAAG

GlnLeuSerLeuThrProThrGluPheSerIleLeuArgIleLeuCysGluAsnLysGly
SerTyrProLeuLeuProProSerPheGlnTyrCysGluSerSerValLysThrArgGly
ValIleProTyrSerHisArgValPheAsnThrAlaAsnProLeu***LysGlnGlyGlu
CAGTTATCCCTTACTCCCACCGAGTTTTCAATACTGCGAATCCTCTGTGAAAACAAGGGG

2000

AsnValValSerSerGluLeuLeuPheHisGluIleTrpGlyAspGluTyrPheSerLys
MetTrpLeuAlaProSerCysTyrPheMetArgTyrGlyAlaThrAsnIleSerAlaArg
CysGly***LeuArgAlaAlaIleSer***AspMetGlyArgArgIlePheGlnGlnGlu
AATGTGGTTAGCTCCGAGCTGCTATTTTCATGAGATATGGGGCGACGAATATTTTCAGCAAG

2100

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SerAsnAsnThrIleThrValHisIleArgHisLeuArgGluLysMetAsnAspThrIle
 AlaThrThrProSerProCysIleSerGlyIleCysAlaLysLys***ThrThrProLeu
 GlnGlnHisHisHisArgAlaTyrProAlaPheAlaArgLysAsnGluArgHisHis***
 AGCAACAACACCATCACCGTGCATATCCGGCATTGCGCGAAAAATGAACGACACCATT

AspAsnProLysTyrIleLysThrValTrpGlyValGlyTyrLysIleGluLys***Lys
 IleIleArgAsnIle***LysArgTyrGlyGlyLeuValIleLysLeuLysAsnLysLys
 SerGluIleTyrLysAsnGlyMetGlyGlyTrpLeuAsn***LysIleLysLys
 GATAATCCGAATATATAAAAACGGTATGGGGGGTTGGTTATAAAATTGAAAAATAAAAA

2200

LysArgLeuPheGlnThrArgThrLysThrLeuHisValTyrArgCysAsnCysCysGly
 AsnAspTyrSerLysLeuGluArgLysLeuTyrMetTyrIleValAlaIleValValVal
 ThrThrIleProAsn***AsnGluAsnPheThrCysIleSerLeuGlnLeuLeuTrp***
 AAACGACTATTCCAACTAGAACGAAACTTTACATGTATATCGTTGCAATTGTTGTGGT

SerAsnCysIleArgValValTyrSerPheAsnAspProArgGluThrTrpGlyLeuAsp
 AlaIleValPheValLeuTyrIleArgSerMetIleArgGlyLysLeuGlyAspTrpIle
 GlnLeuTyrSerCysCysIlePheValGln***SerGluGlyAsnLeuGlyIleGlySer
 AGCAATTGTATTCTGTGTGTATATTCGTTCAATGATCCGAGGGAACTTGGGGATTGGAT

2300

LeuLysTyrPheGlyLysGlnIle***LeuLysSerProGlyArgAspGluIleIleSer
 LeuSerIleLeuGluAsnLysTyrAspLeuAsnHisLeuAspAlaMetLysLeuTyrGln
 ValPheTrpLysThrAsnMetThrIleThrTrpThrArg***AsnTyrIleAsn
 CTTAAGTATTTTGGAAACAAATATGACTTAAATCACCTGGACGCGATGAAATTATATCA

2400

Fig. 5 (8/25)

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IlePheHisThrGluGlnTyrArgTyrLeuTyrLeuCysGlyAspCysHis***TyrSer
TyrSerIleArgAsnAsnIleAspIlePheIleTyrValAlaIleValIleSerIleLeu
IleProTyrGlyThrIle***IleSerLeuPheMetTrpArgLeuSerLeuValPheLeu
ATATTCCATACGGAACAATATAGATATCTTTATTTATGTGGCGATTGTCATTAGTATTCT

TyrSerMetSerArgHisAlaPheLysIleArgLysIleLeu***ArgAspLysTyrArg
IleLeuCysArgValMetLeuSerLysPheAlaLysTyrPheAspGluIleAsnThrGly
PheTyrValAlaSerCysPheGlnAsnSerGlnAsnThrLeuThrArg***IleProAla
TATTCTATGTGCGTCATGCTTTCAAATTCGCAAATACTTTGACGAGATAAATACCGG

2500

His***CysThrTyrSerGluArgArg***ThrAsn***AlaPheCysGlyAsnGlyCys
IleAspValLeuIleGlnAsnGluAspLysGlnIleGluLeuSerAlaGluMetAspVal
LeuMetTyrLeuPheArgThrLysIleAsnLysLeuSerPheLeuArgLysTrpMetLeu
CATTGATGTACTTATTCAGAACGAAGATAAACAATTGAGCTTTCTGCGGAAATGGATGT

TyrGlyThrLysAlaGlnHisIleLysThrAspSerGlyLysAlaArgAlaGlyCysLys
MetGluGlnLysLeuAsnThrLeuLysArgThrLeuGluLysArgGluGlnAspAlaLys
TrpAsnLysSerSerThrHis***AsnGlyLeuTrpLysSerGluSerArgMetGlnSer
TATGGAACAAAAGCTCAACACATTAAACGGACTCTGGAAAAGCGAGAGCAGGATGCAAA

2600

AlaGlyArgThrLysLysLys***ArgCysTyrValLeuGlyAlaArgTyr***AsnAla
LeuAlaGluGlnArgLysAsnAspValValMetTyrLeuAlaHisAspIleLysThrPro
TrpProAsnLysGluLysMetThrLeuLeuCysThrTrpArgThrIleLeuLysArgPro
GCTGGCCGAACAAAGAAAAAATGACGTTGTTATGTACTTGGCGCACGATATTAAACGCC

2700

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ProTyrIleHisTyrArgLeuPheGluProAla***ArgGlySerArgHisAlaGlyArg
LeuThrSerIleIleGlyTyrLeuSerLeuLeuAspGluAlaProAspMetProValAsp
LeuHisProLeuSerValIle***AlaCysLeuThrArgLeuGlnThrCysArg***Ile
CCTTACATCCATTATCGGTTATTTGAGCCTGCTTGACGAGGCTCCAGACATGCCGGTAGA

SerLysGlyLysValCysAlaTyrHisValGlyGlnSerValSerThrArgThrAlaAsn
GlnLysAlaLysTyrValHisIleThrLeuAspLysAlaTyrArgLeuGluGlnLeuIle
LysArgGlnSerMetCysIleSerArgTrpThrLysArgIleAspSerAsnSer***Ser
TCAAAGGCAAGTATGTGCATATCACGTTGGACAAAGCGTATCGACTCGAACAGCTAAT

2800

ArgArgValPhe***AspTyrThrVal***ProThrAsnAspAsnAlaAsnLysAsnAla
AspGluPhePheGluIleThrArgTyrAsnLeuGlnThrIleThrLeuThrLysThrHis
ThrSerPheLeuArgLeuHisGlyIleThrTyrLysArg***Arg***GlnLysArgThr
CGACGAGTTTTTTGAGATTACACGGTATAACCTACAAACGATAACGCTAACAAAAACGCA

HisArgProIleLeuTyrAlaGlyAlaAspAspArg***IleLeuSerSerAlaPheArg
IleAspLeuTyrTyrMetLeuValGlnMetThrAspGluPheTyrProGlnLeuSerAla
ThrTyrThrIleCysTrpCysArgProMetAsnPheIleLeuSerPheProHis
CATAGACCTATACTATATGCTGGTGCAGATGACCGATGAATTTTATCCTCAGCTTTCCGC

2900

ThrTrpLysThrGlyGlyTyrSerArgProArgGlySerAspArgValArgArgPro***
HisGlyLysGlnAlaValIleHisAlaProGluAspLeuThrValSerGlyAspProAsp
MetGluAsnArgArgLeuPheThrProProArgIle***ProCysProAlaThrLeuIle
ACATGGAAAACAGGCGGTTATTCACGCCCCGAGGATCTGACCGTGTCCGGCGACCCTGA

3000

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ThrArgGluSerLeuGlnHisPheGluLysArgArgCysIleGln***Gly***
LysLeuAlaArgValPheAsnAsnIleLeuLysAsnAlaAlaAlaTyrSerGluAspAsn
AsnSerArgGluSerLeuThrThrPhe***LysThrProLeuHisThrValArgIleThr
TAAACTCGCGAGAGTCTTTAACAACATTTTGAAAAACGCCGCTGCATACAGTGAGGATAA
GlnHisHis***HisTyrArgGlyProLeuArgGlyCysGlyValAsnArgIleGlnGlu
SerIleIleAspIleThrAlaGlyLeuSerGlyAspValValSerIleGluPheLysAsn
AlaSerLeuThrLeuProArgAlaSerProGlyMetTrpCysGlnSerAsnSerArgThr
CAGCATCATTGACATTACCGCGGGCCTCTCCGGGGATGTGGTSTCAATCGAATTCAAGAA
3100
HisTrpLysHisProLysArg***AlaSerCysHisIle***LysValLeu***AlaGly
ThrGlySerIleProLysAspLysLeuAlaAlaIlePheGluLysPheTyrArgLeuAsp
LeuGluAlaSerGlnLysIleSer***LeuProTyrLeuLysSerSerIleGlyTrpThr
CACTGGAAGCATCCCAAAGATAAGCTAGCTGCCATATTTGAAAGTTCTATAGGCTGGA
GlnPheSerPhePheArgTyrGlyTrpArgGlyThrTrpIleGlyAspCysLysArgAsn
AsnSerArgSerSerAspThrGlyGlyAlaGlyLeuGlyLeuAlaIleAlaLysGluIle
IleLeuValLeuProIleArgValAlaArgAspLeuAspTrpArgLeuGlnLysLysLeu
CAATTCTCGTTCTTCCGATACGGGTGGCGCGGGACTTGGATTGGCGATTGCAAAAGAAAT
3200
TyrCysSerAlaTrpArgAlaAspLeuArgGlyLysLeu*****LeuTyrAspVal***
IleValGlnHisGlyGlyGlnIleTyrAlaGluSerTyrAspAsnTyrThrThrPheArg
LeuPheSerMetGluGlyArgPheThrArgLysAlaMetIleThrIleArgArgLeuGly
TATTGTTTCAGCATGGAGGGCAGATTTACGCGGAAAGCTATGATAACTATACGACGTTTAG
3300

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GlyArgAlaSerSerAspAlaArgLeuGly*****LysGluValLeuArgAspValTyr
 ValGluLeuProAlaMetProAspLeuValAspLysArgArgSer***GluMetTyrIle
 SerPheGlnArgCysGlnThrTrpLeuIleLysGlyGlyProLysArgCysIle
 GGTAGAGCTTCCAGCGATGCCAGACTTG GTTGATAAAAGGAGGTCCTAAGAGATGTATAT

 AsnPheLeuGlyLysSerGlnGlyTyrLeuTyrPhePheLeuGlyAsn***GlnPheAsn
 IlePhe***GluAsnLeuLysValIlePheThrPheSer***GluIleAsnAsnLeuIle
 PhePheArgLysIleSerArgLeuSerLeuLeuPheLeuArgLysLeuThrIle***Tyr
 AATTTTTTTAGGAAAATCTCAAGGTTATCTTTACTTTTTCTTAGGAAATTAACAATTTAAT
 3400
 IleLysLysArgLeuValLeuThrArg***Thr***TyrArgLysAsnGluProPheSer
 LeuArgAsnGlySerPheLeuHisGlyArgLeuAsnThrValArgThrSerArgPheArg
 GluThrAlaArgSerTyrThrValAspLeuIleProGluArgAlaValPheVal
 ATTAAGAAACGGCTCGTTCCTTACACGGTAGACTTAATACCGTAAGAACGAGCCGTTTTTCG

 PhePheArgGluArgPheAspLysIleThrIleGlyIleProValLeuPheGlyAlaPhe
 SerSerGluLysAspLeuThrArgLeuProLeuAlaSerProPheTyrLeuValProPhe
 LeuGlnArgLysIle***GlnAspTyrHisTrpHisProArgPheIleTrpCysLeuSer
 TTCTTCAGAGAAAGATTTGACAAGATTACCATTGGCATCCCGTTTTTATTTGGTGCCTTT
 3500
 HisArgLysGlyTrpSer***Leu***IleThrSerAlaLeuLeuPheMetAspValSer
 ThrGluArgValGlyLeuAsnTyrGlu***HisArgHisTyrCysLeuTrpMet***Ala
 GlnLysGlyLeuValLeuIleMetAsnAsnIleGlyIleThrValTyrGlyCysGluGln
 CACAGAAAGGGTTGGTCTTAATTATGAATAACATCGGCATTACTGTTTATGGATGTGAGC
 3600

Fig. 5 (12/25)

660220 542660

ArgMetArgGlnMetHisSerMetLeuPheArgLeuAlaLeuAlaLeuTrpGlnArg***
Gly***GlyArgCysIleProCysSerPheAlaSerLeuTrpArgTyrGlyAsnAspAsn
AspGluAlaAspAlaPheHisAlaLeuSerProArgPheGlyValMetAlaThrIleIle
AGGATGAGGCAGATGCATTCCATGCTCTTTTCGCCTCGCTTTGCGTTATGGCAACGATAA
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LeuThrProThrCysArgAsnProThrProAsnProArgLeuSerIleAsnValSerVal
***ArgGlnArgValGlyIleGlnArgGlnIleArgAlaPheGlnSerMetTyrGlnCys
AsnAlaAsnValSerGluSerAsnAlaLysSerAlaProPheAsnGlnCysIleSerVal
TTAACGCCAACGTGTCGGAATCCAACGCCAAATCCGCGCCTTCAATCAATGTATCAGTG
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3700
TrpAspIleAsnGlnArgPheProProLeuPhePheLeuArg***ArgGluProVal***
GlyThr***IleArgAspPheArgLeuTyrSerSerCysAlaGluGluSerArgCysGlu
GlyHisLysSerGluIleSerAlaSerIleLeuLeuAlaLeuLysArgAlaGlyValLys
TGGGACATAAATCAGAGATTTCGCGCTCTATTCTTCTTGCGCTGAAGAGAGCCGGTGTGA
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AsnIlePheLeuProGluAlaSerAlaAlaIleIle***IleGlnLeuLeuLeuArgGlu
IleTyrPheTyrProLysHisArgLeuGlnSerTyrArgTyrAsnCysCys***GluAsn
TyrIleSerThrArgSerIleGlyCysAsnHisIleAspThrThrAlaAlaLysArgMet
AATATATTTCTACCCGAAGCATCGGCTGCAATCATATAGATACAACTGCTGCTAAGAGAA
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3800
TrpAlaSerLeuSerThrMetTrpArgThrArgArgIleAlaLeuProIleIleLeu***
GlyHisHisCysArgGlnCysGlyValLeuAlaGly***ArgCysArgLeuTyrTyrAsp
GlyIleThrValAspAsnValAlaTyrSerProAspSerValAlaAspTyrThrMetMet
TGGGCATCACTGTCGACAATGTGGCGTACTCGCCGGATAGCGTTGCCGATTATACTATGA
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3900

Fig. 5 (13/25)

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Cys***PheLeuTrpGlnTyrAlaThr***AsnArgLeuCysAlaLeuTrpLysAsnMet
 AlaAsnSerTyrGlySerThrGlnArgLysIleAspCysAlaLeuCysGlyLysThr***
 LeuIleLeuMetAlaValArgAsnValLysSerIleValArgSerValGluLysHisAsp
 TGCTAATTCTTATGGCAGTACGCAACGTAAAATCGATTGTGCGCTCTGTGGAAAAACATG

 IleSerGlyTrpThrAlaThrValAlaArgTyrSerAlaThr***GlnLeuValTrpTrp
 PheGlnValGlyGlnArgProTrpGlnGlyThrGlnArgHisAspSerTrpCysGlyGly
 PheArgLeuAspSerAspArgGlyLysValLeuSerAspMetThrValGlyValValGly
 ATTTTCAGGTTGGACAGCGACCGTGGCAAGGTACTCAGCGACATGACAGTTGGTGTGGTGG
 4000
 GluArgAlaArg***AlaLysArgLeuLeuSerGlyCysGluAspLeuAspValLysCys
 AsnGlyProAspArgGlnSerGlyTyr***AlaAlaAlaArgIleTrpMet***SerVal
 ThrGlyGlnIleGlyLysAlaValIleGluArgLeuArgGlyPheGlyCysLysValLeu
 GAACGGGCCAGATAGGCAAAGCGGTTATTGAGCGGCTGCGAGGATTTGGATGTAAAGTGT

 TrpLeuIleValAlaAlaGluVal***Arg***ThrMetTyrArgLeuMetSerCysCys
 GlyLeu***SerGlnProLysTyrArgGlyLysLeuCysThrVal*****ValAlaAla
 AlaTyrSerArgSerArgSerIleGluValAsnTyrValProPheAspGluLeuLeuGln
 TGGCTTATAGTCGCAGCCGAAGTATAGAGGTAACTATGTACCGTTTGATGAGTTGCTGC
 4100
 LysIleAlaIleSerLeuArgPheMetCysArgSerIleArgIleArgThrIleLeuSer
 Lys***ArgTyrArgTyrAlaSerCysAlaAlaGlnTyrGlyTyrAlaLeuTyrTyrGln
 AsnSerAspIleValThrLeuHisValProLeuAsnThrAspThrHisTyrIleIleSer
 AAAATAGCGATATCGTTACGCTTCATGTGCCGCTCAATACGGATACGCACTATATTATCA
 4200

Fig. 5 (14/25)

09367375 022000

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AlaThrAsnLysTyrArgGlu***SerLysGluHisPheLeuSerIleLeuGlyAlaVal
ProArgThrAsnThrGluAsnGluAlaArgSerIleSerTyrGlnTyrTrpAlaArgSer
HisGluGlnIleGlnArgMetLysGlnGlyAlaPheLeuIleAsnThrGlyArgGlyPro
GCCAGGAACAAATACAGAGAATGAAGCAAGGAGCATTCTTATCAATACTGGGCGCGGTC

HisLeu***IleProMetSerTrpLeuLysHis***LysThrGlyAsnTrpAlaValPro
ThrCysArgTyrLeu***ValGly***SerIleArgLysArgGluThrGlyArgCysArg
LeuValAspThrTyrGluLeuValLysAlaLeuGluAsnGlyLysLeuGlyGlyAlaAla
CACTTGATAGATACCTATGAGTTGGTTAAAGCATTAGAAAACGGGAAACTGGGCGGTGCCG

4300

HisTrpMetTyrTrpLysGluArgLysSerPheSerThrLeuIleAlaProLysAsnGln
IleGlyCysIleGlyArgArgGlyArgValPheLeuLeu***LeuHisProLysThrAsn
LeuAspValLeuGluGlyGluGluGluPhePheTyrSerAspCysThrGlnLysProIle
CATTGGATGTATTGGAAGGAGAGGAAGAGTTTTTCTACTCTGATTGCACCCAAAAACCAA

LeuIleIleAsnPheTyrLeuAsnPheLysGluCysLeuThr*****SerHisArgIle
*****SerIlePheThr***ThrSerLysAsnAla***ArgAspAsnHisThrAlaTyr
AspAsnGlnPheLeuLeuLysLeuGlnArgMetProAsnValIleIleThrProHisThr
TTGATAATCAATTTTTACTTTAACTTCAAAGAATGCCTAACGTGATAATCACACCGCATA

4400

ArgProIleIleProSerLysArgCysValIleProLeuLysLysProLeuLysThrVal
GlyLeuLeuTyrArgAlaSerValAla***TyrArg***LysAsnHis***LysLeuPhe
AlaTyrTyrThrGluGlnAlaLeuArgAspThrValGluLysThrIleLysAsnCysLeu
CGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAACCATTAAAACTGTT

4500

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TrpIleLeuLysGlyAspArgSerMetAsnArgIleLysValAlaIleLeuPheGlyGly
 GlyPhe***LysGluThrGlyAla***IleGlu***LysLeuGlnTyrCysLeuGlyVal
 AspPheGluArgArgGlnGluHisGlu***AsnLysSerCysAsnThrValTrpGlyLeu
 TGGATTTTGAAGGAGACAGGAGCATGAATAGAATAAAAGTTGCAATACTGTTTGGGGGT

CysSerGluGluHisAspValSerValLysSerAlaIleGluIleAlaAlaAsnIleAsn
 AlaGlnArgSerMetThrTyrArg***AsnLeuGln***Arg***ProLeuThrLeuIle
 LeuArgGlyAla***ArgIleGlyLysIleCysAsnArgAspSerArg***His*****
 TGCTCAGAGGAGCATGACGTATCGGTAAAATCTGCAATAGAGATAGCCGCTAACATTAAT

4600

LysGluLysTyrGluProLeuTyrIleGlyIleThrLysSerGlyValTrpLysMetCys
 LysLysAsnThrSerArgTyrThrLeuGluLeuArgAsnLeuValTyrGlyLysCysAla
 ArgLysIleArgAlaValIleHisTrpAsnTyrGluIleTrpCysMetGluAsnValArg
 AAAGAAAAATACGAGCCGTTATACATTGGAATTACGAAATCTGGTGTATGGAAAATGTGC

GluLysProCysAlaGluTrpGluAsnAspAsnCysTyrSerAlaValLeuSerProAsp
 LysAsnLeuAlaArgAsnGlyLysThrThrIleAlaIleGlnLeuTyrSerArgArgIle
 LysThrLeuArgGlyMetGlyLysArgGlnLeuLeuPheSerCysThrLeuAlaGly***
 GAAAAACCTTGCGCGGAATGGGAAAACGACAATTGCTATTCAGCTGTACTCTCGCCGGAT

4700

LysLysMetHisGlyLeuLeuValLysLysAsnHisGluTyrGluIleAsnHisValAsp
 LysLysCysThrAspTyrLeuLeuLysArgThrMetAsnMetLysSerThrMetLeuMet
 LysAsnAlaArgIleThrCys***LysGluPro***Ile***AsnGlnProCys***Cys
 AAAAAAATGCACGGATTACTTGTTAAAAAGAACCATGAATATGAAATCAACCATGTTGAT

4800

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ValAlaPheSerAlaLeuHisGlyLysSerGlyGluAspGlySerIleGlnGlyLeuPhe
 ***HisPheGlnLeuCysMetAlaSerGlnValLysMetAspProTyrLysValCysLeu
 SerIlePheSerPheAlaTrpGlnValArg***ArgTrpIleHisThrArgSerVal***
 GTAGCATTTCAGCTTTGCATGGCAAGTCAGGTGAAGATGGATCCATACAAGGTCTGTTT

GluLeuSerGlyIleProPheValGlyCysAspIleGlnSerSerAlaIleCysMetAsp
 AsnCysProValSerLeuLeu***AlaAlaIlePheLysAlaGlnGlnPheValTrpThr
 IleValArgTyrProPheCysArgLeuArgTyrSerLysLeuSerAsnLeuTyrGlyGln
 GAATTGTCCGGTATCCCTTTTGTAGGCTGCGATATTCAAAGCTCAGCAATTTGTATGGAC

4900

LysSerLeuThrTyrIleValAlaLysAsnAlaGlyIleAlaThrProAlaPheTrpVal
 AsnArg***HisThrSerLeuArgLysMetLeuGly***LeuLeuProProPheGlyLeu
 IleValAspIleHisArgCysGluLysCysTrpAspSerTyrSerArgLeuLeuGlyTyr
 AAATCGTTGACATACATCGTTGGGAAAAATGCTGGGATAGCTACTCCCGCCTTTTGGGTT

IleAsnLysAspAspArgProValAlaAlaThrPheThrTyrProValPheValLysPro
 LeuIleLysMetIleGlyArgTrpGlnLeuArgLeuProIleLeuPheLeuLeuSerArg
 *****Arg*****AlaGlyGlySerTyrValTyrLeuSerCysPheCys***AlaGly
 ATTAATAAAGATGATAGGCCGGTGGCAGCTACGTTTACCTATCCTGTTTTTGTAAAGCCG

5000

AlaArgSerGlySerSerPheGlyValLysLysValAsnSerAlaAspGluLeuAspTyr
 ArgValGlnAlaHisProSerVal***LysLysSerIleAlaArgThrAsnTrpThrThr
 AlaPheArgLeuIleLeuArgCysGluLysSerGln***ArgGlyArgIleGlyLeuArg
 GCGCGTTCAGGCTCATCCTTCGGTGTGAAAAAGTCAATAGCGCGGACGAATTGGACTAC

5100

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AlaIleGluSerAlaArgGlnTyrAspSerLysIleLeuIleGluGlnAlaValSerGly
GlnLeuAsnArgGlnAspAsnMetThrAlaLysSer***LeuSerArgLeuPheArgAla
Asn***IleGlyLysThrIle***GlnGlnAsnLeuAsn***AlaGlyCysPheGlyLeu
GCAATTGAATCGGCAAGACAATATGACAGCAAAATCTTAATTGAGCAGGCTGTTTCGGGC

CysGluValGlyCysAlaValLeuGlyAsnSerAlaAlaLeuValValGlyGluValAsp
ValArgSerValValArgTyrTrpGluThrValProArg***LeuLeuAlaArgTrpThr
***GlyArgLeuCysGlyIleGlyLysGlnCysArgValSerCysTrpArgGlyGlyPro
TGTGAGGTCGGTTGTGCGGTATTGGGAAACAGTGCCGCGTTAGTTGTTGGCGAGGTGGAC

5200

GlnIleArgLeuGlnTyrGlyIlePheArgIleHisGlnGluValGluProGluLysGly
LysSerGlyCysSerThrGluSerPheValPheIleArgLysSerSerArgLysLysAla
AsnGlnAlaAlaValArgAsnLeuSerTyrSerSerGlySerArgAlaGlyLysArgLeu
CAAATCAGGCTGCAGTACGGAATCTTTCGTATTCATCAGGAAGTCGAGCCGGA AAAAGGC

SerGluAsnAlaValIleThrValProAlaAspLeuSerAlaGluGluArgGlyArgIle
LeuLysThrGlnLeu***ProPheProGlnThrPheGlnGlnArgSerGluAspGlyTyr
***LysArgSerTyrAsnArgSerArgArgProPheSerArgGlyAlaArgThrAspThr
TCTGAAAACGCAGTTATAACCGTTCCCGCAGACCTTTCAGCAGAGGAGCGAGGACGGATA

5300

GlnGluThrAlaLysLysIleTyrLysAlaLeuGlyCysArgGlyLeuAlaArgValAsp
ArgLysArgGlnLysLysTyrIleLysArgSerAlaValGluVal***ProValTrpIle
GlyAsnGlyLysLysAsnIle***SerAlaArgLeu***ArgSerSerProCysGlyTyr
CAGGAAACGGCAAAAAAATATATAAAGCGCTCGGCTGTAGAGGTCTAGCCCGTGTGGAT

5400

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MetPheLeuGlnAspAsnGlyArgIleValLeuAsnGluValAsnThrLeuProGlyPhe
CysPheTyrLysIleThrAlaAlaLeuTyr***ThrLysSerIleLeuCysProValSer
ValPheThrArg***ArgProHisCysThrGluArgSerGlnTyrSerAlaArgPheHis
ATGTTTTTACAAGATAACGGCCGCATTGTACTGAACGAAGTCAATACTCTGCCCGGTTTC

ThrSerTyrSerArgTyrProArgMetMetAlaAlaAlaGlyIleAlaLeuProGluLeu
ArgHisThrValValIleProVal***TrpProLeuGlnValLeuHisPheProAsn***
ValIleGlnSerLeuSerProTyrAspGlyArgCysArgTyrCysThrSerArgThrAsp
ACGTCATACAGTCGTTATCCCCGTATGATGGCCGCTGCAGGTATTGCACTTCCCGAACTG

5500

IleAspArgLeuIleValLeuAlaLeuLysGly*****AlaTrpLys***AspLeuLeu
LeuThrAla***SerTyr***Arg***ArgGlyAspLysHisGlyAsnArgIleTyrPhe
***ProLeuAspArgIleSerValLysGlyValIleSerMetGluIleGlyPheThrPhe
ATTGACCGCTTGATCGTATTAGCGTTAAAGGGGTGATAAGCATGGAAATAGGATTTACTT

Phe***MetLys***TyrThrValPheValGlyThrLeuAsnMetProLeuGlyIleIle
PheArg***AsnSerThrArgCysSerLeuGlyArg***IleCysHisLeuGly***Phe
LeuAspGluIleValHisGlyValArgTrpAspAlaLysTyrAlaThrTrpAspAsnPhe
TTTTAGATGAAATAGTACACGGTGTTCGTTGGGACGCTAAATATGCCACTTGGGATAATT

5600

SerProGluAsnArgLeuThrValMetLys***IleAlaLeu***GlyHisThrSerTrp
HisArgLysThrGly***ArgLeu***SerLysSerHisCysArgAspIleArgValGly
ThrGlyLysProValAspGlyTyrGluValAsnArgIleValGlyThrTyrGluLeuAla
TCACCGGAAAACCGGTTGACGGTTATGAAGTAAATCGCATTGTAGGGACATACGAGTTGG

5700

29/69

LeuAsnArgPhe***ArgGlnLysAsnTrpLeuLeuProLysGlyThrAspCysPheTyr
***IleAlaPheGluGlyLysArgThrGlyCysTyrProArgValArgIleAlaSerMet
GluSerLeuLeuLysAlaLysGluLeuAlaAlaThrGlnGlyTyrGlyLeuLeuLeuTrp
CTGAATCGCTTTTGAAGGCAAAAGAACTGGCTGCTACCCAAGCGTACGGATTGCTTCTAT

GlyThrValThrValLeuSerValLeu***ThrValLeuCysAsnGlyLeuHisSerArg
GlyArgLeuProSer***AlaCysCysLysLeuPheTyrAlaMetGlyCysThrAlaGly
AspGlyTyrArgProLysArgAlaValAsnCysPheMetGlnTrpAlaAlaGlnProGlu
GGGACGGTTACCGTCCTAAGCGTGCTGTAACTGTTTTATGCAATGGGCTGCACAGCCGG

5800

LysIleThr***GlnArgLysValIleIleProIleLeuThrGluLeuArg***PheGln
Lys***ProAspLysGlyLysLeuLeuSerGlnTyr***ProAsn***AspAspPheLys
AsnAsnLeuThrLysGluSerTyrTyrProAsnIleAspArgThrGluMetIleSerLys
AAAATAACCTGACAAAGGAAAGTTATTATCCCAATATTGACCGAACTGAGATGATTTCAA

LysAspThrTrpLeuGlnAsnGlnAlaIleAlaAlaAlaValProLeuIleLeuArgPhe
ArgIleArgGlyPheLysIleLysPro***ProArgGlnCysHis***SerTyrAlaLeu
GlyTyrValAlaSerLysSerSerHisSerArgGlySerAlaIleAspLeuThrLeuTyr
AAGGATACGTGGCTTCAAAATCAAGCCATAGCCGCGGCAGTGCCATTGATCTTACGCTTT

5900

IleAsp***ThrArgValSerLeuTyrGlnTrpGlyAlaAspLeuIleLeuTrpMetAsn
SerIleArgHisGly***AlaCysThrAsnGlyGluProIle***PheTyrGly***Thr
ArgLeuAspThrGlyGluLeuValProMetGlySerArgPheAspPheMetAspGluArg
ATCGATTAGACACGGGTGAGCTTGTACCAATGGGGAGCCGATTGATTTTATGGATGAAC

6000

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AlaLeuIleMetArgGlnMetGluTyrHisAlaMetLysArgLysIleAlaAspValCys
 LeuSerSerCysGlyLysTrpAsnIleMetGln***SerAlaLysSerGlnThrPheAla
 SerHisHisAlaAlaAsnGlyIleSerCysAsnGluAlaGlnAsnArgArgArgLeuArg
 GCTCTCATCATGCGGCAAATGGAATATCATGCAATGAAGCGCAAATCGCAGACGTTTGC

AlaProSerTrpLysThrValGlyLeuLysHisIleAlaSerAsnGlyGlyThrMetTyr
 LeuHisHisGlyLysGlnTrpVal***SerIle***ProArgMetValAlaLeuCysIle
 SerIleMetGluAsnSerGlyPheGluAlaTyrSerLeuGluTrpTrpHisTyrValLeu
 GCTCCATCATGGAAAACAGTGGGTTTGAAGCATATAGCCTCGATGGTGGCACTATGTAT

6100

***GluThrAsnHisThrProIleAlaIleLeuIleSerProLeuAsnLysLeuLeuThr
 LysArgArgThrIleProGln***LeuPhe***PheProArg***IleAsnPhe***Pro
 ArgAspGluProTyrProAsnSerTyrPheAspPheProValLys***ThrPheAsnArg
 TAAGAGACGAACCATAACCCAATAGCTATTTTGATTTCCTTAAATAAACTTTTAACC

ValAlaArgThrAsnTyrIleSer***LeuPheArgGlnGluThrArgArgMet***Leu
 LeuHisGlyGlnThrIle***AlaAsnSerPheGlyArgLysProAspValCysAsnTrp
 CysThrAspLysLeuTyrLysLeuThrLeuSerAlaGlyAsnProThrTyrValThrGly
 GTTGACGACAACTATATAAGCTAACTCTTTCGGCAGGAACCCGACGTATGTAACCTG

6200

ValLeuArgGluPheIleTyrSerArg***Tyr***ArgCysLysAlaGluArgTyrCys
 PheLeuGlyAsnLeuTyrIleValAspSerIleGluAspValArgGlnSerAspIleAla
 Ser***GlyIleTyrIle*****IleValLeuLysMet***GlyArgAlaIleLeuArg
 GTTCTTAGGGAATTTATATATAGTAGATAGTATTGAAGATGTAGGCAGAGCGATATTGC

6300

GlyHisTyrLeuArgAlaLeuArgGlnAspSerLeuIleIleArgLeuIleAla***Arg
ValIleIleCysValArgCysGlyLysIleAla*****Asp***SerHisArgGly
SerLeuSerAlaCysAlaAlaAlaArg***ProAspAsnLysThrAspArgIleGluGly
GGTCATTATCTGCGTGCGCTGCGGCAAGATAGCCTGATAATAAGACTGATCGCATAGAGG

GlyGlyIleSerHisArgProLeuSerThrGlySerSerAlaSerLeuAsnSerAlaTrp
ValValPheHisThrAlaHisCysGlnGlnAlaValGlnProArg***IleGlnHisGly
TrpTyrPheThrProProIleValAsnArgGlnPheSerLeuValLysPheSerMetGly
GGTGGTATTTACACCGCCCATTTGTCAACAGGCAGTTCAGCCTCGTTAAATTCAGCATGG

6400

ValSerLeuMetLysIleHisLeuHisTrp*****IleGln***GlyGluIle
TyrHisLeu***LysPheIleTyrIleGlyAspAsnSerLysSerSerArgAlaLys***
IleThrTyrGluAsnSerSerThrLeuValIleIleValAsnProValGlyArgAsnAsn
GTATCACTTATGAAAATTCATCTACATTGGTGATAATAGTAAATCCAGTAGGGCGAAATA

~~IleAspCysAsnLeuArgGlyLysThrAlaGlnSerGlnThrArgLeuCysArgLeuArg
LeuThrValIleTyrGlyAlaLysArgHisAsnLeuLysArgAspCysAlaVal***Gly
LeuPheThrGlyGlnAsnGlyThrIleSerAsnGluIleValProPheLysGly
ATTGACTGTAATTTACGGGGCAAACGGGCACAATCTCAAACGASATTGTGCCGTTTAAGG~~

6500

GlyArgPhe***LysTyrPheIleLeuProThrIle***LeuArgArgArgLeuLysMet
GluAspSerArgAsnIleSerTyrPheGlnLeuTyrSer***GlyGlyAsp***Lys***
LysIleLeuGluIlePheHisThrSerAsnTyrIleValLysGluGluThrGluAsnGlu
GGAAGATTCTAGAAATATTTTCATACTTCCAACATATAGTTAAGGAGGAGACTGAAAATG

6600

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LysLysLeuPhePheLeuLeuLeuLeuL uPheLeuIleTyrLeuGlyTyrAspTyrVal
ArgSerCysPhePheTyrCysTyrCysTyrSer***TyrThr***ValMetThrThrLeu
GluValValPhePheIleValIleValIleLeuAsnIleLeuArgLeu***LeuArg***
AAGAAGTTGTTTTTTTTTATTGTTATTGTTATTCTTAATATACTTAGGTTATGACTACGTT

AsnGluAlaLeuPheSerGlnGluLysValGluPheGlnAsnTyrAspGlnAsnProLys
MetLysHisCysPheLeuArgLysLysSerAsnPheLysIleMetIleLysIleProLys
SerThrValPheSerGlyLysSerArgIleSerLysLeuSerLysSerGlnArg
AATGAAGCACTGTTTTCTCAGGAAAAAGTCGAATTTCAAATTTATGATCAAATCCCAA

6700

GluHisLeuGluAsnSerGlyThrSerGluAsnThrGlnGluLysThrIleThrGluGlu
AsnIle***LysIleValGlyLeuLeuLysIleProLysArgLysGlnLeuGlnLysAsn
ThrPheArgLys***TrpAspPhe***LysTyrProArgGluAsnAsnTyrArgArgThr
GAACATTTAGAAAATAGTGGGACTTCTGAAAATACCCAAGAGAAAACAATTACAGAAGAA

GlnValTyrGlnGlyAsnLeuLeuLeuIleAsnSerLysTyrProValArgGlnGluVal
ArgPheIleLysGluIleCysTyr***SerIleValAsnIleLeuPheAlaLysLysCys
GlyLeuSerArgLysSerAlaIleAsnGln*****IleSerCysSerProArgSerVal
CAGGTTTATCAAGGAAATCTGCTATTAATCAATAGTAAATATCCTGTTCGCCAAGAAGTG

6800

SerGlnIleSerIleTyrLeuAsnMetThrAsn*****MetAspThrGlyCys
GluValArgTyrArgGluPheIle***Thr***ArgIleAsnLysTrpIleArgValAla
LysSerAspIleValAsnLeuSerLysHisAspGluLeuIleAsnGlyTyrGlyLeuLeu
TGAAGTCAGATATCGTGAATTTATCTAAACATGACGAATTAATAAATGGATACGGGTTGC

6900

LeuIleValIlePheIleCysGlnLysLys***HisLysAsnPheGlnArgTrpSerMet
 *****TyrLeuTyrValLysArgAsnSerThrLysIlePheArgAspGlyGln***
 AspSerAsnIleTyrMetSerLysGluIleAlaGlnLysPheSerGluMetValAsnAsp
 TTGATAGTAATATTTATATGTCAAAGAAATAGCACAAAATTTTCAGAGATGGTCAATG

 MetLeu***ArgValAlaLeuValIleLeuLeuLeuIleValAlaIleGluThrLeuMet
 CysCysLysGlyTrpArg***SerPheTyrTyr*****TrpLeuSerArgLeu*****
 AlaValLysGlyGlyValSerHisPheIleIleAsnSerGlyTyrArgAspPheAspGlu
 ATGCTGTAAAGGGTGGCGTTAGTCATTTTATTATTAATAGTGCTATCGAGACTTTGATG

 7000
 SerLysValCysPheThrLysLysTrpGlyLeuSerMetProTyrGlnGlnValIleVal
 AlaLysCysAlaLeuProArgAsnGlyGly***ValCysLeuThrSerArgLeu*****
 GlnSerValLeuTyrGlnGluMetGlyAlaGluTyrAlaLeuProAlaGlyTyrSerGlu
 AGCAAAGTGTGCTTTACCAAGAAATGGGGGCTGAGTATGCCTTACCAGCAGGTTATAGTG

 SerIleIleGlnValTyrHis***Met***AspGlnAla***ArgLysTrpAsnGluPro
 Ala***PheArgPheIleThrArgCysArgIleLysLeuAspGluAsnGlyThrSerPro
 HisAsnSerGlyLeuSerLeuAspValGlySerSerLeuThrLysMetGluArgAlaPro
 AGCATAATTCAGGTTTATCACTAGATGTAGGATCAAGCTTGACGAAAATGGAACGAGCCC

 7100
 LeuLysGluSerGly***LysLysMetLeuGlyAsnThrGlySerPheTyrValIleGln
 ***ArgLysValAspArgArgLysCysLeuGluIleArgValHisPheThrLeuSerArg
 GluGlyLysTrpIleGluGluAsnAlaTrpLysTyrGlyPheIleLeuArgTyrProGlu
 CTGAAGGAAAGTGGATAGAAGAAAATGCTTGGAAATACGGGTTTATTTTACGTTATCCAG

 7200

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ArgThrLysGlnSer***GlnGluPhe

GlyGlnAsnArgValAsnArgAsnSer

AspLysThrGluLeuThrGlyIleGln

AGGACAAAACAGAGTTAACAGGAATTC

7227

EcoRV

GATATCGTTACGCTTCATGTGCCGCTCAATACGGATACGCACTATATATATCAGCCACGACAAA	64
TACAGAGAAATGAAGGAGGACATTTCTTATCAATACTGGGCGGTCACCTTGTAGATACCTATGAGTTGGTTAAAGCATTAGAAAAACGG	155
GAAACTGGGCGGTGCCGCATTTGGATGTATTGGAAGGAGAGAGAGTTTCTCTACTCTGTATTGCACCCAAAACCATTTGATAATCAATTT	246
TTACTTAAACTTCAAAGAATGCCCTAACCGTGATAATCACACCGCATACGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAAAA	337
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">RBS</div> <div>▼ MET ASN ARG ILE LYS VAL ALA ILE LEU PHE GLY GLY CYS</div> </div> <div style="margin-left: 100px;">HaeIII</div>	415
CCATTAAAAAAGCTTTGGATTTTGAAGGAGACAGGAGC ATG AAT AGA ATA AAA GGT GCA ATA CTG TTT GGG GGT TGC	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">SER GLU GLU HIS ASP VAL SER VAL LYS SER ALA ILE</div> <div>NlaIII</div> <div>GLU ILE ALA ALA ASN ILE ASN LYS GLU LYS TYR</div> </div>	484
TCA GAG GAG AAT GAC GTA TCG GTA AAA TCT GCA ATA GAG ATA GCC GCT AAC ATT AAT AAA GAA AAA TAC	
GLU PRO LEU TYR ILE GLY ILE THR LYS SER GLY VAL TRP LYS MET CYS GLU LYS PRO CYS ALA GLU TRP	553
GAG CCG TTA TAC ATT GGA ATT ACG AAA TCT GGT GTA TGG AAA ATG TGC GAA AAA CCT TGC GCG GAA TGG	
GLU ASN ASP ASN CYS TYR SER ALA VAL LEU SER PRO ASP LYS LYS MET HIS GLY LEU LEU VAL LYS LYS	622
GAA AAC GAC AAT TGC TAT TCA GCT GTA CTC TCG CCG GAT AAA AAA ATG CAC GGA TTA CTT GTT AAA AAG	
ASN HIS GLU TYR GLU ILE ASN HIS VAL ASP VAL ALA PHE SER ALA LEU HIS GLY LYS SER GLY GLU ASP	691
AAC CAT GAA TAT GAA ATC AAC CAT GAT GTA GCA TTT TCA GCT TTG CAT GGC AAG TCA GGT GAA GAT	
GLY SER ILE GLN GLY LEU PHE GLU LEU SER GLY ILE PRO PHE VAL GLY CYS ASP ILE GLN SER SER ALA	760
GGA TCC ATA CAA GGT CTG TTT GAA TTG TCC GGT ATC CCT TTT GTA GGC TGC GAT ATT CAA AGC TCA GCA	
ILE CYS MET ASP LYS SER LEU THR TYR ILE VAL ALA LYS ASN ALA GLY ILE ALA THR PRO ALA PHE TRP	829
ATT TGT ATG GAC AAA TCG TTG ACA TAC ATC GTT GCG AAA AAT GCT GGG ATA GCT ACT CCC GCC TTT TGG	
VAL ILE ASN LYS ASP ARG PRO VAL ALA ALA THR PHE THR TYR PRO VAL PHE VAL LYS PRO ALA ARG	898
GTT ATT AAT AAA GAT GAT AGG CCG GTG GCA GCT ACG TTT ACC TAT CCT GTT TTT GTT AAG CCG GCG CGT	

FIGURE 6 (2/2)

BER GLY SER BER PHE GLY VAL LYS LYS VAL ASN SER ALA ASP GLU LEU ASP TYR ALA ILE GLU SER ALA	967
TCA GGC TCA TCC TTC GGT GTG AAA AAA GTC AAT AGC GCG GAC GAA TTG GAC TAC GCA ATT GAA TCG GCA	
ARG GLN TYR ASP SER LYS ILE LEU ILE GLU GLN ALA VAL SER GLY CYB GLU VAL GLY CYB ALA VAL LEU	1036
AGA CAA TAT GAC AGC AAA ATC TTA ATT GAG CAG GCT GTT TCG GGC TGT GAG GTC GGT TGT GCG GTA TTG	
GLY ASN SER ALA ALA LEU VAL VAL GLY GLU VAL ASP GLN ILE ARG LEU GLN TYR GLY ILE PHE ARG ILE	1105
GGA AAC AGT GCC GCG TTA GTT GGT GGC GAG GTG GAC CAA ATC AGG CTG CAG TAC GGA ATC TTT CGT ATT	
HIS GLN GLU VAL GLU PRO GLU LYS GLY SER GLU ASN ALA VAL ILE THR VAL PRO ALA ASP LEU SER ALA	1174
CAT CAG GAA GTC GAG CCG GAA AAA GGC TCT GAA AAC GCA GTT ATA ACC GTT CCC GCA GAC CTT TCA GCA	
GLU GLU ARG GLY ARG ILE GLN GLU THR ALA LYS LYS ILE TYR LYS ALA LEU GLY CYB ARG GLY LEU ALA	1243
GAG GAG CGA GGA CCG ATA CAG GAA ACG GCA AAA ATA TAT AAA GCG CTC GGC TGT AGA GGT CTA GCC	
ARG VAL ASP MET PHE LEU GLN ASP ASN GLY ARG ILE VAL LEU ASN GLU VAL ASN THR LEU PRO GLY PHE	1312
CGT GTG GAT ATG TTT TTA CAA GAT AAC GGC CGC ATT GTA CTG AAC GAA GTC AAT ACT CTG CCC GGT TTC	
THR SER TYR SER ARG TYR PRO ARG MET MET ALA ALA GLY ILE ALA LEU PRO GLU LEU ILE ASP ARG	1381
ACG TCA TAC AGT CGT TAT CCC CGT ATG ATG GCT GCA GGT ATT GCA CTT CCC GAA CTG ATT GAC CGC	
LEU ILE VAL LEU ALA LEU LYS GLY ***	
TTG ATC GTA TTA GCG TTA AAG GGG TGA TAA GCATGGAAATAGGATTACTTTTTTAGATGAAATAGTACACGGTTCGTT	1462
GGGACGCTAAATATGCCACTTGGGATAATTTACCCGGAAAAACCGGTTGACGGTTATGAAGTAAATCGCATTTGTAGGGACATACGAGTTGGC	1553
TGAATCGCTTTTGAAGGCCAAAAGAACTGGCTGCTACCCCAAGGGTACGGATTGCTTCTATGGACGGTTACCGTCTTAAGCGTGTGTAAC	1644
TGTTTATGCAATGGGCTGCACAGCCGGAAAAATAACCTGACAAAGGAAAGTTATTATCCCAATATTGACCGAACTGAGATGATTTCAAAAG	1735
SACII	
GGATACGTGGCTTCAAAATCAAGCCATAGCCGCG	1769

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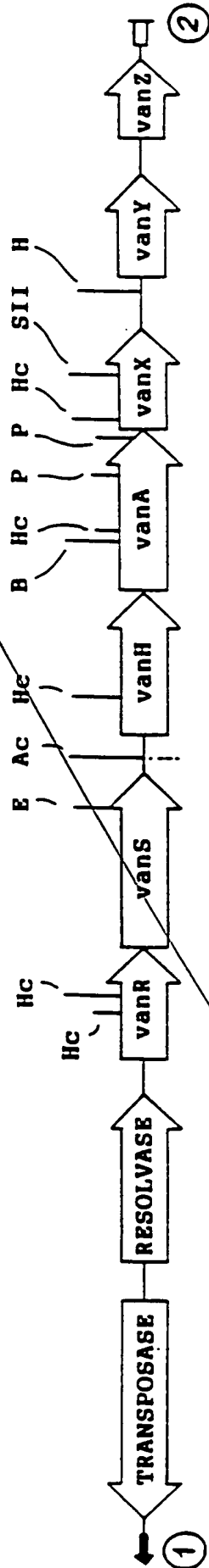


FIG. 7 a

660220" 522360

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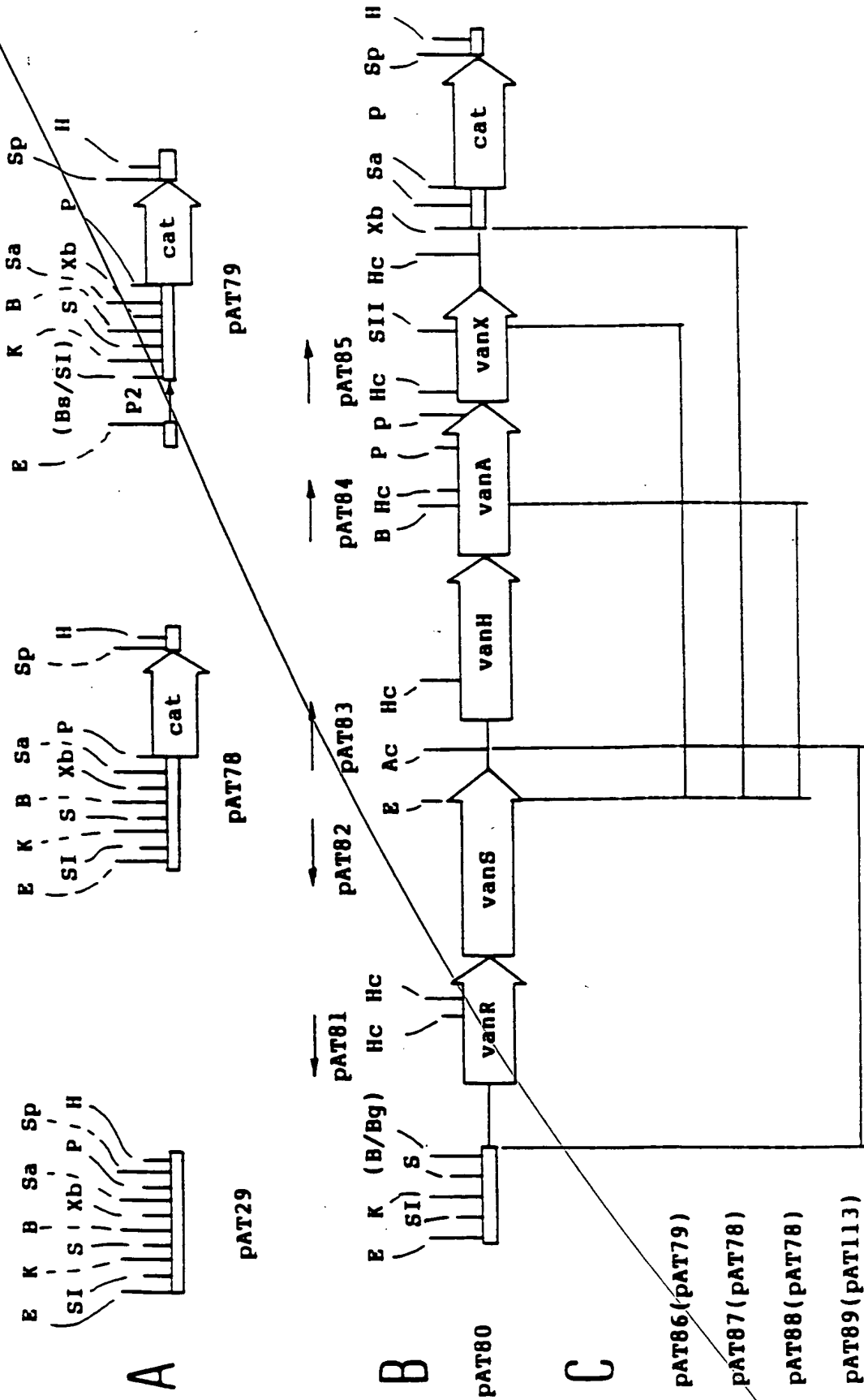


FIG. 7b

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FIGURE 8 (1/23)

la. brin "+"

1 GGG GTA GCG TCA GGA AAA TGC GGA TTT ACA ACG CTA AGC CTA TTT TCC TGA CGA ATC CCT
 61 CGT TTT TAA CAA CGT TAA GAA AGT TTT AGT GGT CTT AAA GAA TTT AAT GAG ACT ACT TTC
 121 TCT GAG TTA AAA TGG TAT TCT CCT AGT AAA TTA ATA TGT TCC CAA CCT AAG GGC GAC ATA
 181 TGG TGT AAC AAA TCT TCA TTA AAG CTA CCT GTC CGT TTT TTA TAT TCA ACT GCT GTT GTT
 241 AGG TGG AGA GTA TTC CAA ATA CTT ATA GCA TTG ATA ATT ATG TTT AAA GCA CTG GCT CTT
 301 TGC AAT TGA TGC TGT ATG GTG CGT TCT CTA AGC TCA CCT TGT TTT CCG AAG AAA ATA GCT
 361 CTT GCC AAT CCA TTC ATG GCT TCT CCT TTA TTC AAT CCT CTT TGT ATT TTT CTT CTT AAT
 421 GAT TCA TCC GAT ATA TAA TTC AAA ATA AAG ATC GTT TTT TCT ATT CGG CCC ATC TCA CGT
 481 AAG GCT GTA GCT AAG CTG TTT TGT CTT GAA TAG GAA CCT AGC TTC CCC ATA ATA AGG GAT
 541 GCT GAA ACT GTT CCC TCC CTT ATA GAA TGA GCT AAT CGC AAA ACA TCC TCA TAA TTT TCT
 601 TTA ATG ACC TTT GTA TTT ATT TGT CCA CGT AAA ATG GCT TCT AGT TTT GGA TAC TCA CTT

661 TTA TCT ATC GTA AAT AAT TTT GAG TCC GAT AAA TCC CTT ATT CTT GGG GCA AAT TTA
 GCT TTA TCT ATC GTA AAT AAT TTT GAG TCC GAT AAA TCC CTT ATT CTT GGG GCA AAT TTA
 721 AAT CCT AAT AAA TGA GTC AGT CCG AAT ATT TGG TCA GTG TAA CCG GCA GTG TCT GTA TAA
 AAT CCT AAT AAA TGA GTC AGT CCG AAT ATT TGG TCA GTG TAA CCG GCA GTG TCT GTA TAA
 781 TGT TCC TCT ATG TTT AGA TCC GTC TCA TGA TGT AAC AAA CCA TCC AAA ACA TGA ATC GCA
 TGT TCC TCT ATG TTT AGA TCC GTC TCA TGA TGT AAC AAA CCA TCC AAA ACA TGA ATC GCA
 841 TCT CTT GAA TTA GTA TGA ATA ATC TTT GTG TAG TAA GAA GAG AAT TGA TCA CTT GTA AAT
 TCT CTT GAA TTA GTA TGA ATA ATC TTT GTG TAG TAA GAA GAG AAT TGA TCA CTT GTA AAT
 901 CGG TAG ATG GTG GCT CCT TTT CCA GTT CCA TAA TGT GGA TTT GCA TCT GCA TGT AGT GAT
 TCT CTT GAA TTA GTA TGA ATA ATC TTT GTG TAG TAA GAA GAG AAT TGA TCA CTT GTA AAT
 961 GAA ACA CCT AGC TGC ATT CTC ATA CCA TCT GAC GAA GAT GTT GTA CCG TCG CCC CAA TAG
 GAA ACA CCT AGC TGC ATT CTC ATA CCA TCT GAC GAA GAT GTT GTA CCG TCG CCC CAA TAG
 1021 AAA GGC AAT TGT AAT TTA TGA TGA AAG TTT ACT AAT ATG GCT TGG GCT TTA TTC ATG GCA
 AAA GGC AAT TGT AAT TTA TGA TGA AAG TTT ACT AAT ATG GCT TGG GCT TTA TTC ATG GCA
 1081 TCT TCA TAC ATG CGC CAT TGA GAT ACA TGA AAG TTT ACT AAT ATG GCT TGG GCT TTA TTC ATG GCA
 TCT TCA TAC ATG CGC CAT TGA GAT ACA TGA AAG TTT ACT AAT ATG GCT TGG GCT TTA TTC ATG GCA
 1141 GCT TCG GCC ATC TTG CTC AAG CCA ATA TTC ATT CCC ATT CCT AAA AGG GCA GCC ATG ATA
 GCT TCG GCC ATC TTG CTC AAG CCA ATA TTC ATT CCC ATT CCT AAA AGG GCA GCC ATG ATA
 1201 ATG ATT GTT TCT TCC TTA TCT TCT GGT TTT CGA TTA TTG GAA GCA TGA GTG AAT TGC TCA TGA
 ATG ATT GTT TCT TCC TTA TCT TCT GGT TTT CGA TTA TTG GAA GCA TGA GTG AAT TGC TCA TGA
 1261 AAT CCT GTT ATA TGG GCC ACA TCC ATG AGT AAA TCA GTT AAT TTT ATT CTT GGT AGC ATC
 AAT CCT GTT ATA TGG GCC ACA TCC ATG AGT AAA TCA GTT AAT TTT ATT CTT GGT AGC ATC
 1321 TGA TAA AGG CTT GCA CTA AAT TTT TTT GCT TCT TCT GGA ACA TCT TTT TCT AAG CGT GCA
 TGA TAA AGG CTT GCA CTA AAT TTT TTT GCT TCT TCT GGA ACA TCT TTT TCT AAG CGT GCA
 1381 AGT GAT AGC TTT CCT TTT TCA AGA GAA ACC CCA TCT AAC TTA TTG GAA TTG GCA GCT AAC
 AGT GAT AGC TTT CCT TTT TCA AGA GAA ACC CCA TCT AAC TTA TTG GAA TTG GCA GCT AAC
 1441 CAC TTT AAC CTT TCA TTA AAG CTG GTT CTC TCC GTT ATA TAA TCT TCG AAT GAT AAA
 CAC TTT AAC CTT TCA TTA AAG CTG GTT CTC TCC GTT ATA TAA TCT TCG AAT GAT AAA

FIGURE 8 (3/23)

1501 ACT GAT AAT CTC GTA TTC CCC TTC GAT TGA TTC CAT GTA TCT TCC GAA AAC AAA TAT
 1561 TCC TCA AAA TCC CTA TAT TGT CTG CCA ACA ATG GAA ACA TCT CCT GCC CGA ACA TGC
 1621 TCC CGA AGT TCT GTT AAA ACA GCC ATT TCA TAG TAA TGA CGA TTA ATT GTT GTA CCA TCA
 1681 TCC TCG TAT AAA TGT CTT TTC CAT CGT TTT GAA ATA AAA TCC ACA GGT GAG TCA TCA GGC
 1741 ACT TTT CGC TTT CCA GAT TCG TTC ATT CCT CGG ATA ATC TCA ACA GCT TGT AAA AGT GGC
 1801 TCA TTT GCC TTT GTA GAA TGA AAT TCC AAT ACT CTT AAT AGC GTT GGC GTA TAT TTT CTT
 1861 AGT GAA TAA AAC CGT TTT TGC AGT AAG TCT AAA TAA TCA TAG TCG GCA GGA CGT GCA AGT
 1921 TCC TGA GCC TCT TCT ACT GAA GAG ACA AAG GTA TTC CAT TCA ATA ACC GAT TCT AAA ACC
 1981 TTA AAA ACG TCT AAT TTT TCC TCT CTT GCT TTA ATT AAT GCT TGT CCG ATG TTC GTA AAG
 2041 TGT ATA ACT TTC TCA TTT AGC TTT TTA CCG TTT TGT TTC TGG ATT TCC TCT TGA GCC TTA
 2101 CGA CCT TTT GAT AAC AAA CTA AGT ATT TGC CTA TCA TGA ATT TCA AAC GCT TTA TCC GTT
 2161 AGC TCC TGA GTA AGT TGT AAT AAA TAG ATG GTT AAT ATC GAA TAA CGT TTA TTT TCT TGA
 2221 AAG TCA CGG AAT GCA TAC GGC TCG TAT CTT GAG CCT AAG CGA GAC AGC TGC AAC AGG CGG
 2281 TTA CGG TGC AAA TGA CTA ATT TGC ACT GTT TCT AAA TCC ATT CCT CGT ATG TAT TCG AGT
 2341

FIGURE 8 (4/23)

CGT TCT ATT ATT TTT AGA AAA GTT TCG GGT GAA GGA TGA CCC GGT GGC TCT TTT AAC CAA
 2401
 CCC AAT ATC GTT TTA TTG GAT TCG GAT GGA TGC TGC GAG GTA ATA ATC CCT TCA AGC TTT
 2461
 TCT TTT TGC TCA TTT GTT AGA GAT TTA CTA ACC GTA TTA AAT AGC TTC TTT TCA GCC ATT
 2521
 GCC CTT GCT TCC CAC ACC ATT CTT TCA AGT GTA GTG ATA GCA GGC AGT ATA ATT TTG TTT
 2581
 TTT CTT AGA AAA TCT ATG CAT TCA TGC AGT AGA TGA ATG GCA TCA CCA TTT TCC AAA GCT
 2641
 AAT TGA TGA AGG TAC TTA AAT TTC AAA TGA TCC CAA AGT GTA TAT TCA CTC AGG GTA AAA GTT ACA AAG TCG
 2701
 TAT TCA CTT CGA ATT TCT TTC AAA TGA TCC CAA AGT GTA TTT TCC CTT TGA GGA TAA TGA
 2761
 TCA AGC GAG GAT GGA CTA ACA CCA ATC TGT TTC GAT ATA TAT TGT ATG ACC GAA TCT GGG
 2821
 ATG CTT TTG ATA TGA GTG TAT GGC CAA CCG GGA TAC CGA AGA ACA GCT AAT TGA ACA GCA
 2881
 AAT CCT AAA CGG TTT TCT TCC CTC CTT CGC TTA TTA ACT ATT TCT AAA TCC CGT TTG GAA
 2941
 AAA GTG AAG TAG GTC CCC AGT ATC CAT TCA TCT TCA GGG ATT TGC ATA AAA GCC TGT CTC
 3001
 TGT TCC GGT GTA AGC AAT TCT CTA CCT CTC GCA ATT TTC ATT CAG TAT CAT TCC ATT TCT
 3061
 GTA TTT TCA ATT TAT TAG TTC AAT TAT ATA TCA ATA GAG TGT ACT CTA TTG ATA CAA ATG
 3121
 TAG TAG ACT GAT AAA ATC ATA GTT AAG AGC GTC TCA TAA GAC TTG TCT CAA AAA TGA GGT

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FIGURE 8 (5/23)

3181 **résolvase**
 LEU ARG LYS ILE GLY TYR ILE ARG VAL SER SER THR ASN GLN ASN PRO SER ARG
 GAT ATT TTG CGG AAA ATC GGT TAT ATT CGT GTC AGT TCG ACT AAC CAG AAT CCT TCA AGA

3241
 GLN PHE GLN GLN LEU ASN GLU ILE GLY MET ASP ILE ILE TYR GLU GLU LYS VAL SER GLY
 CAA TTT CAG CAG TTG AAC GAG ATC GGA ATG GAT ATT ATA TAT GAA GAG AAA GTT TCA GGA

3301
 ALA THR LYS ASP ARG GLU GLN LEU GLN LYS VAL LEU ASP ASP LEU GLN GLU ASP ASP ILE
 GCA ACA AAG GAT CGC GAG CAA CTT CAA AAA GTG TTA GAC GAT TTA CAG GAA GAT GAC ATC

3361
 ILE TYR VAL THR ASP LEU THR ARG ILE THR ARG SER THR GLN ASP LEU PHE GLU LEU ILE
 ATT TAT GTT ACA GAC TTA ACT CGA ATC ACT CGT AGT ACA CAA GAT CTA TTT GAA TTA ATC

3421
 ASP ASN ILE ARG ASP LYS LYS ALA SER LEU LYS SER LEU LYS ASP THR TRP LEU ASP LEU
 GAT AAC ATA CGA GAT AAA AAG GCA AGT TTA AAA TCA CTA AAA GAT ACA TGG CTT GAT TTA

3481
 SER GLU ASP ASN PRO TYR SER SER GLN PHE LEU ILE THR VAL MET ALA GLY VAL ASN GLN LEU
 TCA GAA GAT AAT CCA TAC AGC CAA TTC TTA ATT ACT GTA ATG GCT GGT GGT AAC CAA TTA

3541
 GLU ARG ASP LEU ILE ARG MET ARG GLN ARG GLU GLY ILE GLU LEU ALA LYS LYS GLU GLY
 GAG CGA GAT CTT ATT CGG ATG AGA CAA CGT GAA GGG ATT GAA TTG GCT AAG AAA GAA GGA

3601
 LYS PHE LYS GLY ARG LEU LYS LYS TYR HIS LYS ASN HIS ALA GLY MET ASN TYR ALA VAL
 AAG TTT AAA GGT CGA TTA AAG AAG TAT CAT AAA AAT CAC GCA GGA ATG AAT TAT GCG GTA

3661
 LYS LEU TYR LYS GLU GLY ASN MET THR VAL ASN GLN ILE CYS GLU ILE THR ASN VAL SER
 AAG CTA TAT AAA GAA GGA AAT ATG ACT ACT GTA AAT CAA ATT TGT GAA ATT ACT AAT GTA TCT

3721
 ARG ALA SER LEU TYR ARG LYS LEU SER GLU VAL ASN ASN
 AGG GCT TCA TTA TAC AGG AAA TTA TCA GAA GTG AAT AAT TAG CCA TTC TGT ATT CCG CTA

FIGURE 8 (6/23)

3781 ATG GGC AAT ATT TTT AAA GAA AAG GAA ACT ATA AAA TAT TAA CAG CCT CCT AGC GAT
 3841 GCC GAA AAG CCC TTT GAT AAA AAA AGA ATC ATC TTA AGA AAT TCT TAG TCA TTT ATT
 3901 ATG TAA ATG CTT ATA AAT TCG GCC CTA TAA TCT GAT AAA TTA TTA AGG GCA AAC TTA TGT
 3961 VanR MET SER ASP LYS ILE LEU ILE VAL ASP ASP GLU HIS GLU ILE ALA
 GAA AGG GTG ATA ACT ATG AGC GAT AAA ATA CTT ATT GTG GAT GAT GAA CAT GAA ATT GCC
 4021 ASP LEU VAL GLU LEU TYR LEU LYS ASN GLU ASN TYR THR VAL PHE LYS TYR TYR THR ALA
 GAT TTG GTT GAA TTA TAC TTA AAA AAC GAG AAT TAT ACG GTT TTC AAA TAC TAT ACC GCC
 4081 LYS GLU ALA LEU GLU CYS ILE ASP LYS SER GLU ILE ASP LEU ALA ILE LEU ASP ILE MET
 AAA GAA GCA TTG GAA TGT ATA GAC AAG TCT GAG ATT GAC CTT GCC ATA TTG GAC ATC ATG
 4141 LEU PRO GLY THR SER GLY LEU THR ILE CYS GLN LYS ILE ARG ASP LYS HIS THR TYR PRO
 CTT CCC GGC ACA AGC GGC CTT ACT ATC TGT CAA AAA ATA AGG GAC AAG CAC ACC TAT CCG
 4201 ILE ILE MET LEU THR GLY LYS ASP THR GLU VAL ASP LYS ILE THR GLY LEU THR ILE GLY
 ATT ATC ATG CTG ACC GGC AAA GAT ACA GAG GTA GAT AAA ATT ACA GGG TTA ACA ATC GGC
 4261 ALA ASP ASP TYR ILE THR LYS PRO PHE ARG PRO LEU GLU LEU ILE ALA ARG VAL LYS ALA
 GCG GAT GAT TAT ATA ACG AAG CCC TTT CGC CCA CTG GAG TTA ATT GCT CGG GTA AAG GCC
 4321 GLN LEU ARG ARG TYR LYS LYS PHE SER GLY VAL LYS GLU GLN ASN GLU ASN VAL ILE VAL
 CAG TTG CGC CGA TAC AAA AAA TTC AGT GGA GTA AAG GAG CAG AAC GAA AAT GTT ATC GTC

4381 HIS SER GLY LEU VAL ILE ASN VAL ASN THR HIS GLU CYS TYR LEU ASN GLU LYS GLN LEU
CAC TCC GGC CTT GTC ATT AAT GTT AAC ACC CAT GAG TGT TAT CTG AAC GAG AAG CAG TTA

4441 SER LEU THR PRO THR GLU PHE SER ILE LEU ARG ILE LEU CYS GLU ASN LYS GLY ASN VAL
TCC CTT ACT CCC ACC GAG TTT TCA ATA CTG CGA ATC CTC TGT GAA AAC AAG GGG AAT GTG

4501 VAL SER SER GLU LEU LEU PHE HIS GLU ILE TRP GLY ASP GLU TYR PHE SER LYS SER ASN
GTT AGC TCC GAG CTG CTA TTT CAT GAG ATA TGG GGC GAC GAA TAT TTC AGC AAG AGC AAC

4561 ASN THR ILE THR VAL HIS ILE ARG HIS LEU ARG GLU LYS MET ASN ASP THR ILE ASP ASN
AAC ACC ATC ACC GTG CAT ATC CGG CAT TTG CGC GAA AAA ATG AAC GAC ACC ATT GAT AAT

4621 PRO LYS TYR ILE LYS THR VAL TRP GLY VALGLYTYRILYSILEGLULYS
CCG AAA TAT ATA AAA ACG GTA TGG GGG GTTGGTTATAAATTGAAAAT AAA AAA AAC GAC
VANS LEUVALILELYSLEULYSASN LYS LYS ASN ASP

4682 TYR SER LYS LEU GLU ARG LYS LEU TYR MET TYR ILE VAL ALA ILE VAL VAL ALA ILE
TAT TCC AAA CTA GAA CGA CGA AAA CTT TAC ATG ATC CGA GGG AAA CTT GGG GAT TTA AGT

4742 VAL PHE VAL LEU TYR ILE ARG SER MET ILE ARG GLY LYS LEU GLY ASP TRP ILE LEU SER
GTA TTC GTG TTG TAT ATT CGT TCA ATG ATC CGA GGG AAA CTT GGG GAT TTA AGT

4802 ILE LEU GLU ASN LYS TYR ASP LEU ASN HIS LEU ASP ALA MET LYS LEU TYR GLN TYR SER
ATT TTG GAA AAC AAC TAT GAC TTA AAT CAC CTG GAC GCG ATG AAA TTA TAT CAA TAT TCC

4862 ILE ARG ASN ASN ILE ASP ILE PHE ILE TYR VAL ALA ILE VAL ILE SER ILE LEU ILE LEU
ATA CGG AAC AAT ATA GAT ATC TTT ATT TAT GTG GCG ATT GTC ATT AGT ATT CTT ATT CTA

4922 CYS ARG VAL MET LEU SER LYS PHE ALA LYS TYR PHE ASP GLU ILE ASN THR GLY ILE ASP
TGT CGC GTC ATG CTT TCA AAA TTC GCA AAA TAC TTT GAC GAG ATA AAT ACC GGC ATT GAT

FIGURE 8 (8/23)

4982 VAL LEU ILE GLN ASN GLU ASP LYS GLN ILE GLU LEU SER ALA GLU MET ASP VAL MET GLU
 GTA CTT ATT CAG AAC GAA GAT AAA CAA ATT GAG CTT TCT TCT GCG GAA ATG GAT GTT ATG GAA
 5042 GLN LYS LEU ASN THR LEU LYS ARG THR LEU GLU LYS ARG GLU GLN ASP ALA LYS LEU ALA
 CAA AAG CTC AAC ACA TTA AAA CGG ACT CTG GAA AAG CGA GAG CAG GAT GCA AAG CTG GCC
 5102 GLU GLN ARG LYS ASN ASP VAL VAL MET TYR LEU ALA HIS ASP ILE LYS THR PRO LEU THR
 GAA CAA AGA AAA AAT GAC GTT GTT ATG TAC TTG GCG CAC GAT ATT AAA ACG CCC CTT ACA
 5162 SER ILE ILE GLY TYR LEU SER LEU LEU ASP GLU ALA PRO ASP MET PRO VAL ASP GLN LYS
 TCC ATT ATC GGT TAT TTG AGC CTG CTT GAC GAG GCT CCA GAC ATG CCG GTA GAT CAA AAG
 5222 ALA LYS TYR VAL HIS ILE THR LEU ASP LYS ALA TYR ARG LEU GLU GLN LEU ILE ASP GLU
 GCA AAG TAT GTG CAT ATC ACG TTG GAC AAA GCG TAT CGA CTC GAA CAG CTA ATC GAC GAG
 5282 PHE PHE GLU ILE THR ARG TYR ASN LEU GLN THR ILE THR LEU THR LYS THR HIS ILE ASP
 TTT TTT GAG ATT ACA CGG TAT AAC CTA CAA ACG ATA ACG CTA ACA AAA ACG CAC ATA GAC
 5342 LEU TYR TYR MET LEU VAL GLN MET THR ASP GLU PHE TYR PRO GLN LEU SER ALA HIS GLY
 CTA TAC TAT ATG CTG GTG CAG ATG ACC GAT GAA TTT TAT CCT CAG CTT TCC GCA CAT GGA
 5402 LYS GLN ALA VAL ILE HIS ALA PRO GLU ASP LEU THR VAL SER GLY ASP PRO ASP LYS LEU
 AAA CAG GCG GTT ATT CAC GCC CCC GAG GAT CTG ACC GTG TCC GCG GAC CCT GAT AAA CTC
 5462 ALA ARG VAL PHE ASN ASN ILE LEU LYS ASN ALA ALA TYR SER GLU ASP ASN SER ILE
 GCG AGA GTC TTT AAC AAC ATT TTG AAA AAC GCC GCT GCA TAC AGT GAG GAT AAC AGC ATC

FIGURE 8 (9/23)

47/69

5522 ILE ASP ILE THR ALA GLY LEU SER GLY ASP VAL VAL SER ILE GLU PHE LYS ASN THR GLY
 ATT GAC ATT ACC GCG GGC CTC TCC GGG GAT GTG TCA ATC GAA TTC AAG AAC ACT GGA
 5582 SER ILE PRO LYS ASP LYS LEU ALA ILE PHE GLU LYS PHE TYR ARG LEU ASP ASN ALA
 AGC ATC CCA AAA GAT AAG CTA GCT GCC ATA TTT GAA AAG TTC TAT AGG CTG GAC AAT GCT
 5642 ARG SER SER ASP THR GLY GLY ALA GLY LEU GLY LEU ALA ILE ALA LYS GLU ILE ILE VAL
 CGT TCT TCC GAT ACG GGT GGC GCG GGA CTT GGA TTG GCG ATT GCA AAA GAA ATT ATT GTT
 5702 GLN HIS GLY GLY GLN ILE TYR ALA GLU SER ASN ASP THR THR THR PHE ARG VAL GLU
 CAG CAT GGA GCG CAG ATT TAC GCG GAA AGC AAT GAT AAC TAT ACG ACG TTT AGG GTA GAG
 5762 LEU PRO ALA MET PRO ASP LEU VAL ASP LYS ARG ARG SER
 CTT CCA GCG ATG CCA GAC TTG GTT GAT AAA AGG AGG TCC TAA GA GAT GTA TAT AAT TTT
 5821 TTA GGA AAA TCT CAA GGT TAT CTT TAC TTT TTC TTA GGA AAT TAA CAA TTT AAT ATT AAG
 5881 AAA CGG CTC GTT CTT ACA CGG TAG ACT TAA TAC CGT AAG AAC GAG CCG TTT TCG TTC TTC
 5941 AGA GAA AGA TTT GAC AAG ATT ACC ATT GGC ATC CCC GTT TTA TTT GGT GCC TTT CAC AGA
 6001
 VanH MET ASN ASN ILE GLY ILE THR VAL TYR GLY CYS GLU GLN ASP GLU
 AAGGTTGG TCT TAA TT ATG AAT AAC ATC GGC ATT ACT GTT TAT GGA TGT GAG CAG GAT GAG
 6063
 ALA ASP ALA PHE HIS ALA LEU SER PRO ARG PHE GLY VAL MET ALA THR ILE ILE ASN ALA
 GCA GAT GCA TTC CAT GCT CTT TCG CCT CGC TTT GGC GTT ATG GCA ACG ATA ATT AAC GCC
 6123

FIGURE 8 (10/23)

ASN VAL SER GLU SER ASN ALA LYS SER ALA PRO PHE ASN GLN CYS ILE SER VAL GLY HIS
 AAC GTG TCG GAA TCC AAC GCC AAA TCC GCG CCT TTC AAT CAA TGT ATC AGT GTG GGA CAT
 6183
 LYS SER GLU ILE SER ALA SER ILE LEU LEU ALA LEU LYS ARG ALA GLY VAL LYS TYR ILE
 AAA TCA GAG ATT TCC GCC TCT ATT CTT CTT GCG CTG AAG AGA GCC GGT GTG AAA TAT ATT
 6243
 SER THR ARG SER ILE GLY CYS ASN HIS ILE ASP THR THR ALA ALA LYS ARG MET GLY ILE
 TCT ACC CGA AGC ATC GGC TGC AAT CAT ATA GAT ACA ACT GCT GCT AAG AGA ATG GGC ATC
 6303
 THR VAL ASP ASN VAL ALA TYR SER PRO ASP SER VAL ALA ASP TYR THR MET MET LEU ILE
 ACT GTC GAC AAT GTG GCG TAC TCG CCG GAT AGC GTT GCC GAT TAT ACT ATG ATG CTA ATT
 6363
 LEU MET ALA VAL ARG ASN VAL LYS SER ILE VAL ARG SER VAL GLU LYS HIS ASP PHE ARG
 CTT ATG GCA GTA CGC AAC GTA AAA TCG ATT GTG CGC TCT GTG GAA AAA CAT GAT TTC AGG
 6423
 LEU ASP SER ASP ARG GLY LYS VAL LEU SER ASP MET THR VAL VAL GLY VAL GLY THR GLY
 TTG GAC AGC GAC CGT GGC AAG GTA CTC AGC GAC ATG ACA GTT GGT GTG GTG GGA ACG GGC
 6483
 GLN ILE GLY LYS ALA VAL ILE GLU ARG LEU ARG GLY PHE GLY CYS LYS VAL LEU ALA TYR
 CAG ATA GGC AAA GCG GTT ATT GAG CGG CTG CGA GGA TTT GGA TGT AAA GTG TTG GCT TAT
 6543
 SER ARG SER ARG SER ILE GLU VAL ASN TYR VAL PRO PHE ASP GLU LEU LEU GLN ASN SER
 AGT CGC AGC CGA AGT ATA GAG GTA AAC TAT GTA CCG TTT GAT GAG TTG CTG CAA AAT AGC
 6603
 ASP ILE VAL THR LEU HIS VAL PRO LEU ASN THR ASP THR HIS TYR ILE ILE SER HIS GLU
 GAT ATC GTT ACG CTT CAT GTG CCG CTC AAT ACG GAT ACG CAC TAT ATT ATC AGC CAC GAA
 6663
 GLN ILE GLN ARG MET LYS GLN GLY ALA PHE LEU ILE ASN THR GLY ARG GLY PRO LEU VAL
 CAA ATA CAG AGA ATG AAG CAA GGA GCA TTT CTT ATC AAT ACT GGG CGC GGT CCA CTT GTA

FIGURE 8 (11/23)

6723 ASP THR TYR GLU LEU VAL LYS ALA LEU GLY ASN GLY LYS LEU GLY GLY ALA ALA LEU ASP
GAT ACC TAT GAG TTT GGT AAA GCA TTA GAA AAC GGG AAA CTG GGC GGT GCC GCA TTG GAT

6783 VAL LEU GLU GLY GLU GLU PHE PHE TYR SER ASP CYS THR GLN LYS PRO ILE ASP ASN
GTA TTG GAA GGA GAG GAA GAG TTT TTC TAC TCT GAT TGC ACC CAA AAA CCA ATT GAT AAT

6843 GLN PHE LEU LEU LYS LEU GLN ARG MET PRO ASN VAL ILE ILE THR PRO HIS THR ALA TYR
CAA TTT TTA CTT AAA CTT CAA AGA ATG CCT AAC GTG ATA ATC ACA CCG CAT ACG GCC TAT

6903 TYR THR GLU GLN ALA LEU ARG ASP THR VAL GLU LYS THR ILE LYS ASN CYS LEU ASP PHE
TAT ACC GAG CAA GCG TTG CGT GAT ACC GTT GAA AAA ACC ATT AAA AAC TGT TTG GAT TTT

6963 ~~VADA METASN ARG ILE LYS VAL ALA ILE LEU PHE GLY GLY CYS SER~~
GAA AGG AGA CAG GAG CATGAAT AGA ATA AAA GTT GCA ATA CTG TTT GGG GGT TGC TCA
GLU ARG ARG GLN GLU HISGLU

7021 GLU GLU HIS ASP VAL SER VAL LYS SER ALA ILE GLU ILE ALA ALA ASN ILE ASN LYS GLU
GAG GAG CAT GAC GAT TCG GTA AAA TCT GCA ATA GAG ATA GCC GCT AAC ATT AAT AAA GAA

7081 LYS TYR GLU PRO LEU TYR ILE GLY ILE THR LYS SER GLY VAL TRP LYS MET CYS GLU LYS
AAA TAG GAG CCG TTA TAC ATT GGA ATT ACG AAA TCT GGT GTA TGG AAA ATG TGC GAA AAA

7141 PRO CYS ALA GLU TRP GLU ASN ASP ASN CYS TYR SER ALA VAL LEU SER PRO ASP LYS LYS
CCT TGC GCG GAA TGG GAA AAC GAC AAT TGC TAT TCA GCT GTA CTC TCG CCG GAT AAA AAA

7201 MET HIS GLY LEU LEU VAL LYS LYS ASN HIS GLU TYR GLU ILE ASN HIS VAL ASP VAL ALA
ATG CAC GGA TTA CTT GTT AAA AAG AAC CAT GAA TAT GAA ATC AAC CAT GTT GAT GTA GCA

7261

FIGURE 8 (12/23)

PHE SER ALA LEU HIS GLY LYS SER GLY GLU ASP GLY SER ILE GLN GLY LEU PHE GLU LEU
 TTT TCA GCT TTG CAT GGC AAG TCA TCA GGT GAA GAT GGA TCC ATA CAA GGT CTG TTT GAA TTG
 7321
 SER GLY ILE PRO PHE VAL GLY CYS ASP ILE GLN SER SER ALA ILE CYS MET ASP LYS SER
 TCC GGT ATC CCT TTT GTA GGC TGC GAT ATT CAA AGC TCA GCA ATT TGT ATG GAC AAA TCG
 7381
 LEU THR TYR ILE VAL ALA LYS ASN ALA GLY ILE ALA THR PRO ALA PHE TRP VAL ILE ASN
 TTG ACA TAC ATC GTT GCG AAA AAT GCT GCG ATA GCT ACT CCC GCC TTT TGG GTT ATT AAT
 7441
 LYS ASP ARG PRO VAL ALA ALA THR PHE THR TYR PRO VAL PHE VAL LYS PRO ALA ARG
 AAA GAT GAT AGG CCG GTG GCA GCT ACG TTT ACC TAT CCT GTT TTT GTT AAG CCG GCG CGT
 7501
 SER GLY SER SER PHE GLY VAL LYS LYS VAL ASN SER ALA ASP GLU LEU ASP TYR ALA ILE
 TCA GGC TCA TCC TTC GGT GTG AAA AAA GTC AAT AGC GCG GAC GAA TTG GAC TAC GCA ATT
 7561
 GLU SER ALA ARG GLN TYR ASP SER LYS ILE LEU ILE GLU GLN ALA VAL SER GLY CYS GLU
 GAA TCG GCA AGA CAA TAT GAC AGC AAA ATC TTA ATT GAG CAG GCT GCT TCG GGC TGT GAG
 7621
 VAL GLY CYS ALA VAL LEU GLY ASN SER ALA ALA LEU VAL GLY GLU VAL ASP GLN ILE
 GTC GGT TGT GCG GTA TTG GGA AAC AGT GCC GCG TTA GTT GGT GGC GAG GTG GAC CAA ATC
 7681
 ARG LEU GLN TYR GLY ILE PHE ARG ILE HIS GLN GLU VAL GLU PRO GLU LYS GLY SER GLU
 AGG CTG CAG TAC GGA ATC TTT CGT ATT CAT CAG GAA GTC GAG CCG GAA AAA GGC TCT GAA
 7741
 ASN ALA VAL ILE THR VAL PRO ALA ASP LEU SER ALA GLU GLU ARG GLY ARG ILE GLN GLU
 AAC GCA GTT ATA ACC GTT CCC GCA GAC CTT TCA GCA GAG GAG CGA GGA CGG ATA CAG GAA
 7801
 THR ALA LYS LYS ILE TYR LYS ALA LEU GLY CYS ARG GLY LEU ALA ARG VAL ASP MET PHE
 ACG GCA AAA AAA ATA TAT AAA GCG CTC GGC TGT AGA GGT CTA GCC CGT GTG GAT ATG TTT

7861 LEU GLN ASP ASN GLY ARG ILE VAL LEU ASN GLU VAL ASN THR LEU PRO GLY PHE THR SER
 TTA CAA GAT AAC GGC CGC ATT GTA CTG AAC GAA GTC AAT ACT CTG CCC GGT TTC ACG TCA
 7921 TYR SER ARG TYR PRO ARG MET MET ALA ALA GLY ILE ALA LEU PRO GLU LEU ILE ASP
 TAC AGT CGT TAT CCC CGT ATG ATG GCC GCT GCA GGT ATT GCA CTT CCC GAA CTG ATT GAC
 7981 ARG LEU ILE VAL LEU ALA LEU LYS GLY
 CGC TTG ATC GTA TTA GCG TTA AAG GGG TGATAAGC ATG GAA ATA GGA TTT ACT TTT TTA GAT
 VanX MET GLU ILE GLY PHE THR PHE LEU ASP
 8043 GLU ILE VAL HIS GLY VAL ARG TRP ASP ALA LYS TYR ALA THR TRP ASP ASN PHE THR GLY
 GAA ATA GTA CAC GGT GTT CGT TGG GAC GCT AAA TAT GCC ACT TGG GAT AAT TTC ACC GGA
 8103 LYS PRO VAL ASP GLY TYR GLU VAL ASN ARG ILE VAL GLY THR TYR GLU LEU ALA GLU SER
 AAA CCG GTT GAC GGT TAT GAA GTA AAT CGC ATT GTA GGG ACA TAC GAG TTG GCT GAA TCG
 8163 LEU LEU LYS ALA LYS GLU LEU ALA ALA THR GLN GLY TYR GLY LEU LEU TRP ASP GLY
 CTT TTG AAG GCA AAA GAA GAA CTG GCT GCT ACC CAA GGG TAC GGA TTG CTT CTA TGG GAC GGT
 8223 TYR ARG PRO LYS ARG ALA VAL ASN CYS PHE MET GLN TRP ALA ALA GLN PRO GLU ASN ASN
 TAC CGT CCT AAG CGT GCT GTA AAC TGT TTT ATG CAA TGG GCT GCA CAG CCG GAA AAT AAC
 8283 LEU THR LYS GLU SER TYR TYR PRO ASN ILE ASP ARG THR GLU MET ILE SER LYS GLY TYR
 CTG ACA AAG GAA AGT TAT TAT CCC AAT ATT GAC CGA ACT GAG ATG ATT TCA AAA GGA TAC
 8343 VAL ALA SER LYS SER SER HIS SER ARG GLY SER ALA ILE ASP LEU THR LEU TYR ARG LEU
 GTG GCT TCA AAA TCA AGC CAT AGC CGC GGC AGT GCC ATT GAT CTT ACG CTT TAT CGA TTA
 8403 ASP THR GLY GLU LEU VAL PRO MET GLY SER ARG PHE ASP PHE MET ASP GLU ARG SER HIS
 GAC ACG GGT GAG CTT GTA CCA ATG GGG AGC CGA TTT GAT TTT ATG GAT GAA CGC TCT CAT

FIGURE 8 (14/23)

8463 HIS ALA ALA ASN GLY ILE SER CYS ASN GLU ALA GLN ASN ARG ARG ARG LEU ARG SER ILE
CAT GCG GCA AAT GGA ATA TCA TGC AAT GAA GCG CAA AAT CGC AGA CGT TTG CGC TCC ATC
8523 MET GLU ASN SER GLY PHE GLU ALA TYR SER LEU GLU TRP TRP HIS TYR VAL LEU ARG ASP
ATG GAA AAC AGT GGG TTT GAA GCA TAT AGC CTC GAA TGG TGG CAC TAT GTA TTA AGA GAC
8583 GLU PRO TYR PRO ASN SER TYR PHE ASP PHE PRO VAL LYS
GAA CCA TAC CCC AAT AGC TAT TTT GAT TTC CCC GTT AAA TAAA CTT TTA ACC GTT GCA
8641 CCG ACA AAC TAT ATA AGC TAA CTC TTT CCG CAG GAA ACC CGA CGT ATG TAA CTG GTT CTT
8701 AGG GAA TTT ATA TAT AGT AGA TAG TAT TGA AGA TGT AAG GCA GAG CGA TAT TGC GGT CAT
8761 TAT CTG CGT GCG CTG CCG CAA GAT AGC CTG ATA ATA AGA CTG ATC GCA TAG AGG GGT GGT
8821 ATT TCA CAC CGC CCA TTG TCA ACA GGC AGT TCA GCC TCG TTA AAT TCA GCA TGG GTA TCA
8881 CTT ATG AAA ATT CAT CTA CAT TGG TGA TAA TAG TAA ATC CAG TAG GGC GAA ATA ATT GAC
8941 TGT AAT TTA CCG GGC AAA ACG GCA CAA TCT CAA ACG AGA TTG TGC CGT TTA AGG GGA AGA
9001 TTC TAG AAA TAT TTC ATA CTT CCA ACT ATA TAG TTA AGG AGG AGA CTG AAA ATG AAG AAG
9061 LEU PHE PHE LEU LEU LEU LEU PHE LEU ILE TYR LEU GLY TYR ASP TYR VAL ASN GLU
TTG TTT TTT TTA TTG TTA TTC TTA ATA TAC TTA GGT TAT GAC TAC GTT AAT GAA

Vary

MET LYS LYS

FIGURE 8 (15/23)

[illegible]

FIGURE 8 (16/23)

HIS SER ALA ILE MET LYS GLU LYS ASN PHE VAL LEU GLU GLU TYR MET ASP TYR LEU LYS
 CAT AGT GCG ATT ATG AAA GAA AAG AAT TTC GTT CTC GAG GAA TAT ATG GAT TAC CTA AAA
 9781
 GLU GLU LYS THR ILE SER VAL SER VAL ASN GLY GLU LYS TYR GLU ILE PHE TYR TYR PRO
 GAA GAA AAA ACC ATT TCT GTT GTT AGT GTA AAT GGG GAA AAA TAT GAG ATC TTT TAT TAT CCT
 9841
 VAL THR LYS ASN THR THR ILE HIS VAL PRO THR ASN LEU ARG TYR GLU ILE SER GLY ASN
 GTT ACT AAA AAT ACC ACC ATT CAT GTG CCG ACT AAT CTT CGT TAT GAG ATA TCA GGA AAC
 9901
 ASN ILE ASP GLY VAL ILE VAL THR VAL PHE PRO GLY SER THR HIS THR ASN SER ARG ARG
 AAT ATA GAC GGT GTA ATT GTG ACA GTG TTT CCC GGA TCA ACA CAT ACT AAT TCA AGG AGG
 9961
 TAA GGA TGG CGG AAT GAA ACC AAC GAA ATT AAT GAA CAG CAT TAT TGT ACT AGC ACT TTT
 10021
 GGG GTA ACG TTA GCT TTT TAA TTT AAA ACC CAC GTT AAC TAG GAC ATT GCT ATA CTA ATG
 10081
 ATA CAA CTT AAA CAA AAG AATTAGAGG AAA TTA TA TTG GGA AAA ATA TTA TCT AGA GGA TTG
 10143
 LEU ALA LEU TYR LEU VAL THR LEU ILE TRP LEU VAL LEU PHE LYS LEU GLN TYR ASN ILE
 CTA GCT TTA TAT TTA GTG ACA CTA ATC TGG TTA GTG TTA TTC AAA TTA CAA TAC AAT ATT
 10203
 LEU SER VAL PHE ASN TYR HIS GLN ARG SER LEU ASN LEU THR PRO PHE THR ALA THR GLY
 TTA TCA GTA TTT AAT TAT CAT CAA AGA AGT CTT AAC TTG ACT CCA TTT ACT GCT ACT GGG
 10263
 ASN PHE ARG GLU MET ILE ASP ASN VAL ILE ILE PHE ILE PRO PHE GLY LEU LEU ASN
 AAT TTC AGA GAG ATG ATA GAT AAT GTT ATA ATC TTT ATT CCA TTT GGC TTG CTT TTG AAT

FIGURE 8(17/23)

10323 VAL ASN PHE LYS GLU ILE GLY PHE LEU PRO LYS PHE ALA PHE VAL LEU VAL LEU SER LEU
 GTC AAT TTT AAA GAA ATC GGA TTT TTA CCT AAG TTT GCT TTT GTA CTG GTT TTA AGT CTT
 10383 THR PHE GLU ILE ILE GLN PHE ILE PHE ALA ILE GLY ALA THR ASP ILE THR ASP VAL ILE
 ACT TTT GAA ATA ATT CAA TTT ATC TTC GCT ATT GGA GCG ACA GAC ATA ACA GAT GTA ATT
 10443 THR ASN THR VAL GLY GLY PHE LEU GLY LEU LYS LEU TYR GLY LEU SER ASN LYS HIS MET
 ACA AAT ACT GTT GGA GGC TTT CTT GGA CTG AAA TTA TAT GGT TTA AGC AAT AAG CAT ATG
 10503 ASN GLN LYS LYS LEU ASP ARG VAL ILE ILE PHE VAL GLY ILE LEU LEU VAL LEU LEU
 AAT CAA AAA AAA TTA GAC AGA GTT ATT ATT TTT GTA GGT ATA CTT TTG CTC GTA TTA TTG
 10563 LEU VAL TYR ARG THR HXS LEU ARG ILE ASN TYR VAL
 CTC GTT TAC CGT ACC CAT TTA AGA ATA AAT TAC GTG TAAG ATG TCT AAA TCA AGC AAT
 10621 CTG ATC TTT GAT ACA CAT AAA GAT ATT GAA TGA ATT GGA TTA GAT GGA AAA CGG GAT GTG
 10681 GGG AAA CTC GCC CGT AGG TGT GAA GTG AGG GGA AAA CCG GTG ATA AAG TAA AAA GCT TAC
 10741 CTA ACA CTA TAG TAA CAA AGA AAG CCC AAT TAT CAA TTT TAG TGC TGA GGA ATT GGT CTC
 10801 TTT AAT AAA TTT CCT TAA CGT TGT AAA TCC GCA TTT TCC TGA CGG TAC CCC

Ib brin(-)

1 CAA AAT ATC ACC TCA TTT TTG AGA CAA GTC TTA TGA GAC GCT CTT AAC TAT GAT TTT ATC
61 AGT CTA CTA CAT TTG TAT CAA TAG AGT ACA CTC TAT TGA TAT ATA ATT GAA CTA ATA AAT

121 **Transposase** MET LYS ILE ALA ARG GLY ARG GLU LEU LEU THR
TGA AAA TAC AGA AAT GGA ATGATACTG AA ATG AAA ATT GCG AGA GGT AGA GAA TTG CTT ACA
182 PRO GLN GLN ARG GLN ALA PHE MET GLN ILE PRO GLU ASP GLU TRP ILE LEU GLY THR TYR
CCG GAA CAG AGA CAG GCT TTT ATG CAA ATC CCT GAA GAT GAA TGG ATA CTG GGG ACC TAC
242 PHE THR PHE SER LYS ARG ASP LEU GLU ILE VAL ASN LYS ARG ARG GLU GLU ASN ARG
TTC ACT TTT TCC AAA CCG GAT TTA GAA ATA GTT AAT AAG CGA AGG AGG GAA GAA AAC CGT
302 LEU GLY PHE ALA VAL GLN LEU ALA VAL LEU ARG TYR PRO GLY TRP PRO TYR THR HIS ILE
TTA GGA TTT GCT GTT CAA TTA GCT GTT CTT CGG TAT CCC GGT TGG CCA TAC ACT CAT ATC
362 LYS SER ILE PRO ASP SER VAL ILE GLN TYR ILE SER LYS GLN ILE GLY VAL SER PRO SER
AAA AGC ATC CCA GAT TCG GTC ATA CAA TAT ATA TCG AAA CAG ATT GGT GTT AGT CCA TCC
422 SER LEU ASP HIS TYR PRO GLN ARG GLU ASN THR LEU TRP ASP HIS LEU LYS GLU ILE ARG
TCG CTT GAT CAT TAT CCT CAA AGG GAA AAT ACA CTT TGG GAT CAT TTG AAA GAA ATT CGA

FIGURE 8 (19/23)

482 SER GLU TYR ASP PHE VAL THR PHE THR LEU SER GLU TYR ARG MET THR PHE LYS TYR LEU
AGT GAA TAC GAC TTT GTA ACT TTT ACC CTG AGT GAA TAT CGA ATG ACA TTT AAG TAC CTT

542 HIS GLN LEU ALA LEU GLU ASN GLY ASP ALA ILE HIS LEU LEU HIS GLU CYS ILE ASP PHE
CAT CAA TTA GCT TTG GAA AAT GGT GAT GCC ATT CAT CTA CTG CAT GAA TGC ATA GAT TTT

602 LEU ARG LYS ASN LYS ILE ILE LEU PRO ALA ILE THR THR LEU GLU ARG MET VAL TRP GLU
CTA AGA AAA AAC AAA ATT ATA CTG CCT GCT ATC ATC ACT ACA CTT GAA AGA ATG GTG TGG GAA

662 ALA ARG ALA MET ALA GLU LYS LYS LEU PHE ASN THR VAL SER LYS SER LEU THR ASN GLU
GCA AGG GCA ATG GCT GAA AAG AAG CTA TTT AAT ACG GTT AGT AAA TCT CTA ACA AAT GAG

722 GLN LYS GLU LYS LEU GLU GLY ILE ILE THR SER GLN HIS PRO SER GLU SER ASN LYS THR
CAA AAA GAA AAG CTT GAA GGG ATT ATT ACC TCG CAG CAT CCA TCC GAA TCC AAT AAA ACG

782 ILE LEU GLY TRP LEU LYS GLU PRO PRO GLY HIS PRO SER PRO GLU THR PHE LEU LYS ILE
ATA TTG GGT TGG TTA AAA GAG CCA CCG GGT CAT CCT TCA CCC GAA ACT TTT CTA AAA ATA

842 ILE GLU ARG LEU GLU TYR ILE ARG GLY MET ASP LEU GLU THR VAL GLN ILE SER HIS LEU
ATA GAA CGA CTC GAA TAC ATA CGA GGA ATG GAT TTA GAA ACA GTG CAA ATT AGT CAT TTG

902 HIS ARG ASN ARG LEU LEU GLN LEU SER ARG LEU GLY SER ARG TYR GLU PRO TYR ALA PHE
CAC CGT AAC CGC CTG TTG CAG CTG TCT CGC TTA GGC TCA AGA TAC GAG CCG TAT GCA TTC

962 ARG ASP PHE GLN GLU ASN LYS ARG TYR SER ILE LEU THR ILE TYR LEU LEU GLN LEU THR
CGT GAC TTT CAA GAA AAT AAA CGT TAT TCG ATA TTA ACC ATC TAT TTA TTA CAA CTT ACT

1022 GLN GLU LEU THR ASP LYS ALA PHE GLU ILE HIS ASP ARG GLN ILE LEU SER LEU LEU SER
CAG GAG CTA ACG GAT AAA GCG TTT GAA ATT CAT GAT AGG CAA ATA CTT AGT TTG TTA TCA

1082
 LYS GLY ARG LYS ALA GLN GLU GLU ILE GLN LYS LYS GLN ASN GLY LYS LEU ASN GLU LYS
 AAA GGT CGT AAG GCT CAA GAG GAA ATC CAG AAA CAA AAC GGT AAA AAG CTA AAT GAG AAA
 1142
 VAL ILE HIS PHE THR ASN ILE GLY GLN ALA LEU ILE LYS ALA ARG GLU GLU LYS LEU ASP
 GTT ATA CAC TTT ACG AAC ATC GGA CAA GCA TTA ATT AAA GCA AGA GAG GAA AAA TTA GAC
 1202
 VAL PHE LYS VAL LEU GLU SER VAL ILE GLU TRP ASN THR PHE VAL SER SER VAL GLU GLU
 GTT TTT AAG GTT TTA GAA TCG GTT ATT GAA TGG AAT ACC TTT GTC TCT TCA GTA GAA GAG
 1262
 ALA GLN GLU LEU ALA ARG PRO ALA ASP TYR ASP TYR LEU ASP LEU LEU GLN LYS ARG PHE
 GCT CAG GAA CTT GCA CGT CCT GCC GAC TAT GAT TAT TTA GAC TTA CTG CAA AAA CGG TTT
 1322
 TYR SER LEU ARG LYS TYR THR PRO THR LEU LEU ARG VAL LEU GLU PHE HIS SER THR LYS
 TAT TCA CTA AGA AAA TAT ACG CCA ACG CTA TTA AGA GTA TTG GAA TTT CAT TCT ACA AAG
 1382
 ALA ASN GLU PRO LEU LEU GLN ALA VAL GLU ILE ILE ARG GLY MET ASN GLU SER GLY LYS
 GCA AAT GAG CCA CTT TTA CAA GCT GTT GAG ATT ATC CGA GGA ATG AAC GAA TCT GGA AAG
 1442
 ARG LYS VAL PRO ASP ASP SER PRO VAL ASP PHE ILE SER LYS ARG TRP LYS ARG HIS LEU
 CGA AAA GTG CCT GAT GAT GAC TCA CCT GTG GAT TTT ATT TCA AAA CGA TGG AAA AGA CAT TTA
 1502
 TYR GLU ASP ASP GLY THR THR ILE ASN ARG HIS TYR TYR GLU MET ALA VAL LEU THR GLU
 TAC GAG GAT GAT GGT ACA ACA ATT AAT AAT CGT CAT TAC TAT GAA ATG GCT GTT TTA ACA GAA
 1562
 LEU ARG GLU HIS VAL ARG ALA GLY ASP VAL SER ILE VAL GLY SER ARG GLN TYR ARG ASP
 CTT CGG GAG CAT GTT CGG GCA GGA GAT GTT TCC ATT GTT GGC AGC AGA CAA TAT AGG GAT

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FIGURE 8 (21/23)

1622 PHE GLU GLU TYR LEU PHE SER GLU ASP THR TRP ASN GLN SER LYS GLY ASN THR ARG LEU
 TTT GAG GAA TAT TTG TTT TCG GAA GAT ACA TGG AAT CAA TCG AAG GGG AAT ACG AGA TTA
 1682 SER VAL SER LEU SER PHE GLU ASP TYR ILE THR GLU ARG THR SER SER PHE ASN GLU ARG
 TCA GTT AGT TTA TCA TTC GAA GAT TAT ATA ACG GAG AGA ACC AGC AGC TTT AAT GAA AGG
 1742 LEU LYS TRP LEU ALA ALA ASN SER ASN LYS LEU ASP GLY VAL SER LEU GLU LYS GLY LYS
 TTA AAG TGG TTA GCT GCC AAT TCC AAT AAG TTA GAT GGG GTT TCT CTT GAA AAA GGA AAG
 1802 LEU SER LEU ALA ARG LEU GLU LYS ASP VAL PRO GLU GLU ALA LYS LYS PHE SER ALA SER
 CTA TCA CTT GCA CGC TTA GAA AAA GAT GTT CCA GAA GAA GCA AAA AAA TTT AGT GCA AGC
 1862 LEU TYR GLN MET LEU PRO ARG ILE LYS LEU THR ASP LEU LEU MET ASP VAL ALA HIS ILE
 CTT TAT CAG ATG CTA CCA AGA ATA AAA TTA ACT GAT TTA CTC ATG GAT GTG GCC CAT ATA
 1922 THR GLY PHE HIS GLU GLN PHE THR HIS ALA SER ASN ASN ARG LYS PRO ASP LYS GLU GLU
 ACA GGA TTT CAT GAG CAA TTC ACT CAT CAT GCT TCC AAT AAT CGA AAA CCA GAT AAG GAA GAA
 1982 THR ILE ILE ILE MET ALA ALA LEU LEU GLY MET GLY MET ASN ILE GLY LEU SER LYS MET
 ACA ATC ATT ATC ATG GCT GCT GCC CTT TTA GGA ATG GGA ATG AAT ATT GGC TTG AGC AAG ATG
 2042 ALA GLU ALA THR PRO GLY LEU THR TYR LYS GLN LEU ALA ASN VAL SER GLN TRP ARG MET
 GCC GAA GCC ACA CCC GGA CTT ACA TAT AAG CAA CTA GCC AAT GTA TCT CAA TGG CGC ATG
 2102 TYR GLU ASP ALA MET ASN LYS ALA GLN ALA ILE LEU VAL ASN PHE HIS HIS LYS LEU GLN
 TAT GAA GAT GCC ATG AAT AAA GCC CAA GCC ATA TTA GTA AAC TTT CAT CAT AAA TTA CAA
 2162 LEU PRO PHE TYR TRP GLY ASP GLY THR THR SER SER ASP GLY MET ARG MET GLN LEU
 TTG CCT TTC TAT TGG GGC GAC GGT ACA ACA TCT TCG TCA GAT GGT ATG AGA ATG CAG CTA

2222 GLY VAL SER SER LEU HIS ALA ASP ALA ASN PRO HIS TYR GLY THR GLY LYS GLY ALA THR
 GGT GTT TCA TCA CTA CAT GCA GAT GCA AAT CCA CAT TAT GGA ACT GGA AAA GGA GCC ACC
 2282 ILE TYR ARG PHE THR SER ASP GLN PHE SER SER TYR TYR THR LYS ILE ILE HIS THR ASN
 ATC TAC CGA TTT ACA AGT GAT CAA TTC TCT TCT TAC TAC ACA AAG ATT ATT CAT ACT AAT
 2342 SER ARG ASP ALA ILE HIS VAL LEU ASP GLY LEU LEU HIS HIS GLU THR ASP LEU ASN ILE
 TCA AGA GAT GCG ATT CAT GTT TTG GAT GGT TTG TTA CAT CAT GAG ACG GAT CTA AAC ATA
 2402 GLU GLU HIS TYR THR ASP THR ALA GLY TYR THR ASP GLN ILE PHE GLY LEU THR HIS LEU
 GAG GAA CAT TAT ACA GAC ACT GCC GGT TAC ACT GAC CAA ATA TTC GGA CTG ACT CAT TTA
 2462 LEU GLY PHE LYS PHE ALA PRO ARG ILE ARG ASP LEU SER ASP SER LYS LEU PHE THR ILE
 TTA GGA TTT AAA TTT GCC CCA AGA ATA AGG GAT TTA TCG GAC TCA AAA TTA TTT ACG ATA
 2522 ASP LYS ALA SER GLU TYR PRO LYS LEU GLU ALA ILE LEU ARG GLY GLN ILE ASN THR LYS
 GAT AAA GCA AGT GAG TAT CCA AAA CTA GAA GCC ATT TTA CGT GGA CAA ATA AAT ACA AAG
 2582 VAL ILE LYS GLU ASN TYR GLU ASP VAL LEU ARG LEU ALA HIS SER ILE ARG GLU GLY THR
 GTC ATT AAA GAA AAT TAT GAG GAT GTT TTG CGA TTA GCT CAT TCT ATA AGG GAG GGA ACA
 2642 AGT TTC AGC ATC CCT TAT TAT GGG GAA GCT AGG TTC CTA TTC AAG ACA AAA CAG CTT AGC
 VAL SER ALA SER LEU ILE MET GLY LYS LEU GLY SER TYR SER ARG GLN ASN SER LEU ALA
 GTT TCA GCA TCC CTT ATT ATG GGG AAG CTA GGT TCC TAT TCA AGA CAA AAC AGC TTA GCT
 2702 THR ALA LEU ARG GLU MET GLY ARG ILE GLU LYS THR ILE PHE ILE LEU ASN TYR ILE SER
 ACA GCC TTA CGT GAG ATG GGC CGA ATA GAA AAA ACG ATC TTT ATT TTG AAT TAT ATA TCG

FIGURE 8 (23/23)

2762 ASP GLU SER LEU ARG ARG LYS ILE GLN ARG GLY LEU ASN LYS GLY GLU ALA MET ASN GLY
 GAT GAA TCA TTA AGA AGA AAA ATA CAA AGA GGA TTTG AAT AAA GGA GAA GCC ATG AAT GGA
 2822 LEU ALA ARG ALA ILE PHE PHE GLY LYS GLN GLY LEU ARG GLU ARG THR ILE GLN HIS
 TTG GCA AGA GCT ATT TTC TTC GGA AAA CAA GGT GAG CTT AGA GAA CGC ACC ATA CAG CAT
 2882 GLN LEU GLN ARG ALA SER ALA LEU ASN ILE ILE ILE SER ILE TRP ASN THR
 CAA TTG CAA AGA GCC AGT GCT TTA AAC ATA ATT ATC AAT GCT ATA AGT ATT TGG AAT ACT
 2942 TCT CCA CCT AAC AAC AGC AGT TGA ATA TAA AAA ACG GAC AGG TAG CTT TAA TGA AGA TTT
 LEU HIS LEU THR THR ALA VAL GLU TYR LYS LYS ARG THR GLY SER PHE ASN GLU ASP LEU
 CTC CAC CTA ACA ACA GCA GGT GAA TAT AAA AAA CGG ACA GGT AGC TTT AAT GAA GAT TTG
 3002 LEU HIS HIS MET SER PRO LEU GLY TRP GLU HIS ILE ASN LEU LEU GLY GLU TYR HIS PHE
 TTA CAC CAT ATG TCG CCC TTA GGT TGG GAA CAT ATT AAT TTA CTA GGA GAA TAC CAT TTT
 3062 ASN SER GLU LYS VAL VAL SER LEU ASN SER LEU ARG PRO LEU LYS LEU SER
 AAC TCA GAG AAA GTA GTC TCA TTA AAT TCT TTA AGA CCA CTA AAA CTT TCT TAA CGT TG
 3121 TTA AAA ACG AGG GAT TCG TCA GGA AAA TAG GCT TAG CGT TGT AAA TCC GCA TTT TCC TGA
 3181 CGC TAC CCC

SacI

GAGCTCTTCCTTCAACGCACTTCTGTACCAAGAGTTGTTGTC	42
CATTGATCACTAACATAGCTTCCCCCTGCTTCTTCAAGCCCTTTGTGCATAAAATCGTTAGATTTTCA	111
TCATAAAATACGAGAAAGACACAGGAAGACCGCAAAATTTTCTTTTCTTAGGTACACTGAATG	180
TAACCTTAAAGAAAAAGGAAAGGAAATGATGAAAAAATTCGCTTTTATTGGAGGG	244
N S P E Y S V S L T S A A S V I Q A I D	304
AATTCTCCAGAACTACTCAGTGTCACTAACCTCAGCAGCAAGTGTGATCCAAAGCTATTGAC	364
P L K Y E V M T I G I A P T M D W Y W Y	424
CCGCTGAAATATGAAGTAATGACCATTTGGCATTCGCAACCAATGGATTGGTATTGGTAT	484
Q G N L A N V R N D T W L E D H K N C H	544
CAAGGAAACCTCGCGAATGTTGCAATGATATCTTGGCTAGAAAGATCACAACCACTGTCTAC	604
Q L T F S S Q G F I L G E K R I V P D V	664
CAGCTGACTTTTCTAGCCAAGGATTTATATATTAGGAGAAAAACGAATCGTCCCTGATGTC	724
L F P V L H G K Y G E D G C I Q G L L E	
CTCTTTCCAGTCTTGCAATGGGAAGTATGGCGAGGATGGCTGTATCCAAAGGACTGCTTGAA	
L M N L P Y V G C H V A A S A L C M N K	
CTAATGAACCTGCCCTTATGTTGGTTGCCATGTCCGCTGCCCTCCGCTATGATGAACAAA	
W L L H Q L A D T M G I A S A P T L L L	
TGGCTCTTGCACTCAACTTGCTGTATACCATGGGAATCGCTAGTGTCTCCACTTTGCTTTTA	
S R Y E N D P A T I D R F I Q D H G F P	
TCCCCGCTATGAAAAACGATCCCTGCCACAATCGATCGTTTATTATCAAGACCATGGATTCCCG	

FIGURE 9(1/2)

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I F I K P N E A G S B K G I T K V T D K
ATCTTTATCAGCCGAATGAAGCCGGTTCTCTCAAAAGGGATCACAAAAGTAAGTACACAAA 784

T A L Q S A L T T A F A Y G S T V L I Q
ACAGCGCTCCAATCTGCATTAACGACTGCTTTTGCTTACGGTTCTACTGTGTGATCCAA 844

K A I A G I E I G C G I L G N E Q L T I
AAGCGGATAGCGGGTATTGMAATTGGCTGGCGCATCTTAGGMAATGAGCAATTGACGATT 904

G A C D A I S L V D G F F D F E E K Y Q
GGTGCTTGATGCGGATTTCTCTTGTCGACGGGTTTTTTTGATTTTGAAGAGMAATACCAA 964

L I S A T I T V P A P L P L A L E S Q I
TTAATCAGCGCCAGCATCACTGTCCAGCACCCATTGCCCTCTCGCGCTTGAATCACAGATC 1024

K E Q A Q L L Y R N L G L T G L A R I D
AAGGAGCAGCACAGCTGCTTTATTCGMAACTTGGGATTGACGGGTCTGGCTCGAATCGAT 1084

F F V T N Q G A I Y L N E I N T M P G F
TTTTTCGTCACCAATGAAGGAGCGGATTTATTAAACGMAATCAACACCATGCCGGGATTT 1144

T G H S R Y P A M M A E V G L S Y E I L
ACTGGCACTCCCGCTACCCAGCTATGATGGCGGAAGTCGGGTATCTCTACGAAATATA 1204

V E Q L E A L A E E D K R *
GTAGAGCAATTGATTGCACCTGGCAGAGGAGGACMAACGATGAACACATTACAAATTGATCAATA 1267

AAAACCATCCATTGAAAAAATAACAGAGCCCCCGCACTTAGTGCTAGCTCCTTTTAGCGATCAGATG 1336

TTTACCTGCAG 1347
Pst I

FIGURE 9 (2/2)

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VaaC  --HKKIAVLFGGNSPEYSVSLTSAASVIOAIDPLKYEVMTIGIAPTHDWMYQGNLANVRNDTWLEDHKNCHQLTFSSQGFI LGEKRIVP-----D
VaaA  MNRIKVAILFGCCEEHDSVSKSAIEIAANINKEKYEPLYIGITKSGVMKHCEKPCAENENDNCYSAVLS PDKMMHGLLVKNHHEYEINH-----VD
Dd1A  MEKLRVGIVFGKSAEHEVSLQSAKNIVDAIDKSRFDVVL LGIDKQGQWHVSDASNYLLNADDPAHIALRPSATSLAQVP GKHEHOLIDA QNGQPLPTVD
Dd1B  -MTDKIAVLLGCTSAEREVSLNSGAAVLAGLREGGIDAYP VDPKEVDVTQ LKSMGFQKV-----

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Vanc VLFVPLHGKY GEDGCIQGLL ELMNLPYVGC HVAASALCHN KWLHLQADT MGIASAPTLT LSRYEND--- PATIDRFIQD HGFPIFIKPN EAGSSKGIK
Vana VAFSALHGKS GEDGSIQGLF ELSGIPFVGC DIQSSAICHMD KSLTYIVAKN AGIATPAFVW INKDDRP--- -----VAAT FTYPVFVKPA RSGSSFVGVK
Vodla VIFPIVHGTL GEDGSLOGHL RVANLPFVGS DVLASAACHMD KDVTKRLLRD AGINIAPFIT LTRANRHNIS FAE---VESK LGLPLFVKPA NQGSSVGVSK
Vodlb --FIALHGRG GEDGTLOGHL ELMGLPYTGS GVMAALSMD KLRSKLLWQG AGLPVAPHVA LTRAEFEKGL SOKQLAEISA LGLPVIKPS REGSSVGMKS

I CUU IUUCGUGG CI IC C IU CI I C IC CCC
domain 2

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~~VTDKTAQSA LTTFAYGST VLIQKAINGI EIGCGILGNE -QLTIGACDA ISLVGGFFDF EEKYQLIS-- --ATITVPAP LPLALESQIK EQAOLLYRNL~~

~~VNSADELDA IESARQYDSK ILIEQAVSGG EVGCAVLGNS AALVUGEVDQ IRLQYGIFRI HQEVEPEKGS ENAVITVPAD LSAERGRIQ ETAKKIYKAL~~

~~VTSEEQYATA VALAFEFDHK VIVEQGICKGR EIECAVLGND NP-----QAST CGEIVLTSDF YAYDTKYIDE DGAKWVUPAA IAPEINDKIR AIABOAYQTLL~~

~~VVAENALQDA LRLAQFHDEE VLIERWLSP EFTVALIGEE IL-----P SIRIQPSGTF YDYEAKEYLSD ETOYFC-PAG LEASQEANLQ ALVLKAWTTL~~

I C I CCC CC J IC GCU
domaine 3

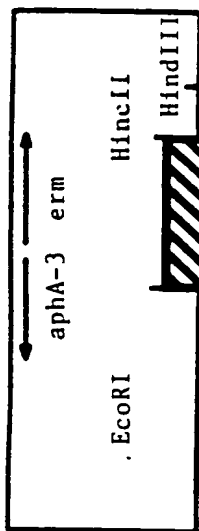
~~VaNC~~ GLTGLARIDF FVTNQGAIYL NEINTHPGFT GHSRYPMMA EVGLSYEILV EQLIALAEED KR
~~VaNA~~ GCRGLARVDH FLQNGRIVL NEVNTLPGFT SYSRYPRMMA AAGIALPELI DRILIVLALKG
~~DDIA~~ GCAGHARVDV FLTPENEVI NEINTLPGFT NISNYPKLWQ ASGLGYTDLI TRILIELALER HAANNALKTT M
~~DDIA~~ GCKGWGRIDV HLDSDGQFYL LEANTSPGHT SHSLVPMMAAR QAGMSFSQLV VRILELAD
 I I C I C I C C C C I I I I I C I I I C C C I I
 domain 4

FIGURE 10

FIGURE 11

FIGURE 12

A



B



C

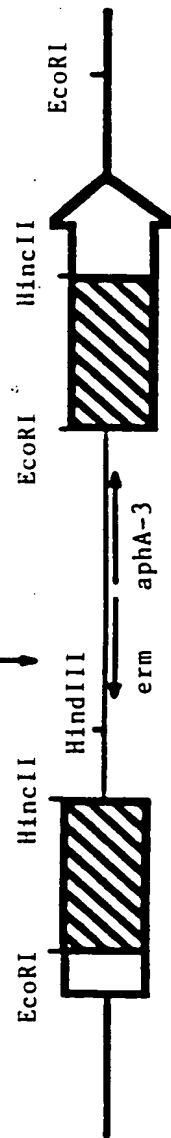
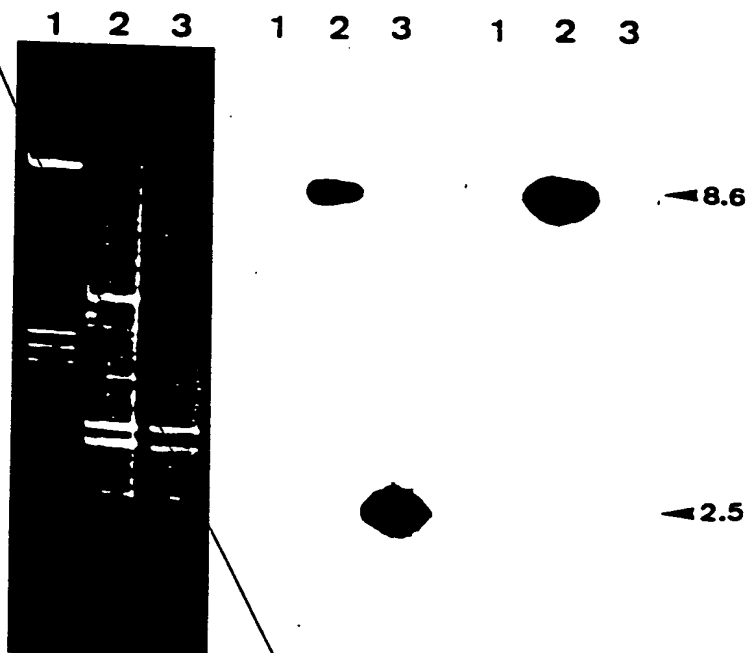


FIGURE 13



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FIGURE 14

VanR	--MSDKIL--	--IVDDEHEIAADLVELYLYKKNENYTVFK--YYTAKAEAL	ECIDKSEI	DLAI	LDIML	56																																	
OmpR	MQENYKIL--	--VVDDDMRLRALLEERYLTTEQGFQVRS--VANAEQMDRL	LTRESF	HLML	LDLML	58																																	
PhoB	--MARRIL--	--VVEDEAPIREMVCFLVLEQNGFQPVVE--AEDYDSAVNQ	LNPEWPD	LI	LDWML	56																																	
Chey	--MADKELKFL	VVDDFSTMRRIVRNLLKELGFNNVEEAEDGVDA	LNKLQAGGF	GI	ISDWNM	60																																	
VanR	PGTSGLTICQK	IRDKHTY--PIIMLTGKDT	TEVDKI	TGLTIGAD	YITKPF	RL	EL	IA	RVKA	115																													
OmpR	PGEDGLSICRR	LRSQSNPM--PIIMVTAKGEEVDRI	VGLEIGAD	DIYIP	KPFN	PREL	LARI	RA		118																													
PhoB	PGGSGIQFIKHL	KKRESMTRDI	IPVVMLTAR	GEEEDRV	GLE	TGAD	DIYIT	KPF	SPKEL	VARIKA	118																												
Chey	PNMDDGLELLKT	IRADSAMSA	LPVLMVTA	EAKKENI	IAAAQAG	SGYV	VVKPF	TAA	TL	EEKLNK	122																												
VanR	QLRRYKK-FSG	VKEQENENVI	VHSGLVIN	VNTH	ECYLN	EKQL	SLTP	TEFS	IL	RIL	CENKGN	V	176																										
OmpR	VLRQANELPG	APSQEEAVIA	FGKFKLN	LGTR	EMFRE	DEP	MP	LTSG	EF	AVL	KAL	VSH	PREP	L	180																								
PhoB	VMRRI	SP----	MAVEEV	IEMQ	GLSL	DPTSH	RV	MAGE	EE	PL	EM	GP	TEE	KLL	HFF	MT	H	PER	V	Y	174																		
Chey	IFEK	LGM	129																																				
VanR	SSEL	LFHEI	WG	DEY	FSKS	NN	TI	TVH	IRH	LR	EK	MND	TID	NPK	YIK	TV	WG	VGY	K	IEK	231																		
OmpR	SRDK	LMN	LAR	GR	EYS	AMER	-S	IDV	QIS	RLRM	VE	ED	PA	HP	RY	IQT	VWG	LG	YV	FV	PD	G	S	K	A	239													
PhoB	SREQ	LLN	HW	WG	TNV	YVED	R	-T	VD	VH	IR	LR	-K	A	L	E	P	G	G	H	D	R	M	V	Q	T	V	R	G	T	G	Y	R	E	S	T	R	F	229

FIGURE 15